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ORIGINAL ARTICLES.

DISEASES AND DEATHS OCCURRING IN THE MEDICAL SERVICE OF JOSEPH JONES, M.D., 1869–1886,[1]

IN THE CHARITY HOSPITAL OF NEW ORLEANS, LA. WITH PRACTICAL OBSERVATIONS.

Conclusions of value may be obtained by a general review of the results of medical service extending over a series of years. The nature of such conclusions, and their relations to the practice of medicine, must evidently depend not merely upon the number of the observations, but also upon the mode in which they were recorded.

The writer has served in the Charity Hospital of New Orleans, Louisiana, from January 1, 1869, to April 1, 1870, and since that time to April 1, 1886, six months of each year, from the 1st of October to the 1st of April; and during this period, extending over eighteen years, he has kept a careful record of the names, ages, and nativity of the patients, diagnosis, and the final results of the cases treated by him in the wards of the hospital. During this period the total number of cases of disease under his care and immediate treatment was 6311, of which 668, or 10.4 per cent., terminated fatally.

The following consolidated record will form a permanent value for comparison, and for the illustration of the nature and mortality of the prevalent diseases of the delta of the Mississippi:

Tabular Statement of cases and deaths, and percentage and rate of mortality during the various periods specified in the medical service of Joseph Jones, M.D., in the Charity Hospital of New Orleans, La.:

Periods of time embraced in medical service in the Charity Hospital of New Orleans.	Total Cases Treated	Total Deaths.	Per cent. of Deaths.	Death rate per 1000.	One death in so many cases.
January 1, 1869 to April 1, 1870. 15 months					
October 1, 1870, to April 1, 1871, 6 "					
" 1871, " 1872, 6 "					
Total 27 months	1111	106	9.5	95	10.48
October 1, 1872, to April 1, 1873, 6 months	213	39	18.3	183	5.46
" 1873, " 1874, "	517	51	9.8	98	10.13
" 1874, " 1875, "	757	65	8.5	85	11.60
" 1875, " 1876, "					
" 1876, " 1877, "	437	43	9.8	98	10.16
" 1877, " 1878, "	510	58	11.3	113	8.79
" 1878, " 1879, "	283	32	11.3	113	8.87
" 1879, " 1880, "	262	29	10.8	110	9.03
" 1880, " 1881, "	516	56	10.8	108	9.21
" 1881, " 1882, "					
" 1882, " 1883, "	373	43	11.5	115	8.67
" 1883, " 1884, "	462	55	11.9	119	7.96
" 1884, " 1885, "	547	63	11.5	115	8.30
" 1885, " 1886, "	323	28	8.6	86	11.53
Total	6311	668	10 4	104	9.44

GENERAL DISEASES. MALARIAL, PAROXYSMAL, ENDEMIC, NON-CONTAGIOUS FEVERS.

	Cases.	Deaths
Intermittent fever, including quotidian, tertian and quartan,	2327	5
Remittent malarial fever,	247	7
Pernicious congestive malarial fever, including the comatose, algid, and other varieties (a large proportion of the cases were brought into the hospital in a moribund condition),	87	56
Chronic malarial poisoning (malarial toxæmia, cachexia), with various complications, as enlarged liver and spleen, contracted liver and hardened spleen, anæmia and anasarca,	212	14
Malarial hæmaturia,	12	6
Total malarial endemic non-contagious fevers,	2885	88

Per cent. of deaths in the various forms of malarial fever, 3.05; ratio of deaths in 1000 cases of the various forms of malarial fever, 30.5; one death in 32.8 cases of the various forms of malarial fever.

MICROSCOPICAL AND CHEMICAL CHANGES OF THE BLOOD IN MALARIAL FEVER.

The author has been led, by extended observations and investigations, during a period of 30 years—1855–1886—to definite conclusions, some of which may thus be formulated:

1. The phenomena of malarial fever in the human organism are due to the introduction of a morbific ferment.

2. The micro-organism concerned in the production of malarial fever attacks chiefly the best blood corpuscles of man.

3. The phenomena of malarial fever are due in part to the destruction of the colored blood corpuscles, in part to the derangement of the normal chemical changes of the blood and organs, and in part to toxic action of the chemical compound developed by, and resulting from, the action of the micro-organisms.

4. The chemical and physical changes excited in the blood and organs of the human body by the action of the malarial micro-organisms are in their highest and final results inimical to the development and multiplication of the essential potential elements of the malarial ferment.

[1] Read in the Section on Practical Medicine, at the Thirty-Seventh Annual Meeting of the American Medical Association.

5. The active febrile phenomena of malarial fever are, in their ultimate results and products, *antiseptic;* they tend to inhibit the development, and even to destroy the morbific ferment of malarial fever.

6. Many of the most destructive and fatal effects of the malarial ferment occur in cases in which there has been comparatively little elevation of temperature, and in which the paroxysms succeed each other in an almost imperceptible manner.

7. The recurrence of paroxysms in malarial fever is due to the *partial destruction* of the micro-organisms during the active and pronounced chemical changes of the fever. When not wholly destroyed during the febrile stage, the micro-organisms are *reproduced*, and again, at definite intervals, induce disturbances of the nervous system, alterations of the blood, and oscillations of the temperature.

8. Such agents as quinia, arsenic, and the preparations of mercury, act as poisons to the micro-organisms of malarial fever, excite an antiseptic effect upon the blood, bind the oxygen more nearly or chiefly to the hæmoglobin, and proteids, and directly promote the elimination, through the alimentary canal, the skin, and the kidneys, of the noxious products of the morbific ferment and of the increased and altered chemical actions.

9. The changes induced by the morbific malarial ferments upon the blood differ chemically and microscopically from those induced by other morbific organisms, as those of small-pox, typhoid fever, typhus fever, yellow fever, measles, scarlet fever, relapsing fever, diphtheria, Asiatic cholera, Oriental plague, tuberculosis, Oriental leprosy, pneumonia, pleuritis, carditis, erysipelas, rheumatism and pyæmia.

10. The micro-organisms which we have observed in the blood of patients suffering from malarial fever may be thus briefly enumerated:

(a). Minute globular bodies from 10,000 to 30,000 of an inch in diameter, having the general appearance and chemical features of the spores of bacteria.

(b). Globular bodies of larger size than the preceding, often of a dark opaque character, found not only in the *liquor sanguinis*, but also in the colored blood corpuscles and in the colorless blood corpuscles. These bodies, most probably true spores, appear to possess the power of invading and destroying the colored blood corpuscles. These micrococci, or spores, are often observed in the blood, in groups, surrounded by protoplasm constituting zooglœa.

(c). Ovoid, cylindrical and rose-shaped bodies, not destroyed by acetic acid, and stained by anilin dyes. These bodies increase during the cold stage, and are also more numerous in pernicious malarial fever.

(d). Colorless blood corpuscles containing minute pigments, granules, and dark spherical bodies resembling sporules, many of them pigments, corpuscles, or aggregations of dark spherical bodies, surrounded by protoplasm, are about twice the diameter of the colorless blood corpuscles of normal blood; and their behavior under the action of reagents, and also during the process of staining, leads to the view that a portion at least of these bodies must be regarded as vegetable organisms. These large pigment cells appear to be characteristic of malarial fever.

(e). Masses of hæmatin of various forms, irregular in size and shape, but most generally the sides and portions seen in profile are angular. The deposit of dark pigment masses in the liver and in the brain, in malarial fever, and especially in cases of repeated paroxysms, finds its origin in the changes of the colored blood corpuscles induced by the morbific ferment, or micro-organisms of malarial fever.

There is an actual destruction of the colored blood corpuscles in the living blood, and within the walls of the living capillaries and blood vessels in malarial fever; and this destruction is not referable either solely or originally to the action of the bile acids accumulated in the blood as a consequence of biliary congestion or obstruction during the febrile stage of malarial fever.

We can detect the process of the disintegration of the colored blood corpuscles by the microscope, and detect the very inception of that great pathological change which constitutes one of the most distinctive features of malarial fever, and which must be carefully considered in any scientific and rational plan of treatment.

(f). Marked variations in the size of the colored blood corpuscles. These variations, from small corpuscles to what might be called giant corpuscles, twice the diameter of normal blood globules, appear to be characteristic of malarial fever.

11. *The destruction of colored blood corpuscles* does not take place with equal rapidity in all parts of the organism, but appears to be mostly marked in the spleen and liver. The blood pigment resulting from the hæmatin of the blood corpuscles is frequently observed in the blood as it circulates in the vessels and capillaries, in masses of various sizes, and in the form of cellular elements.

Without doubt local congestion may be caused by obstruction of the circulation in the capillaries by these pigment particles and cells; and such congestion may lead to local hæmorrhages. The congestions and hæmorrhages thus resulting are especially significant when occurring within the structures of the brain and spinal cord.

The appropriation of a portion of the altered coloring matter, hæmatin of the colored blood corpuscles, by the leucocytes, is due to the physical and vital endowments of these elementary bodies.

It is now generally admitted that the colorless blood corpuscles are elementary organisms, which are endowed with the power of spontaneous motion, this power belonging to them in virtue of the protoplasm of which these bodies are composed. This motion is of two kinds, consisting of change of form and change of place; the latter resulting from the former. As movements of this kind are seen in greater perfection in rhizopods and *amœbæ*, they are called *amœboid*.

The colorless corpuscles, when carefully examined in considerable numbers under high forms of the microscope, $\frac{1}{10}$ to $\frac{1}{20}$ inch objective, are seen to differ from one another both in size and aspect, and in their properties and spontaneous movements.

The careful experiments of physiologists have established the important fact that it is possible to *find the colorless blood corpuscles.* It has been demonstrated that the *colorless blood corpuscles possess the faculty of taking, by virtue of their amœboid movements, solid particles into their substance.* This subject is of great interest to the histologist, in affording him a means by which to mark individual corpuscles so as to follow them in their wanderings through the organism, and to the physiologist, in relation to the mode in which amœboid cells take in nourishment; to the student of fevers it is of transcendent importance in giving an important point of diagnosis for malarial fever, which distinguishes it from all other forms, and especially yellow fever.

The author demonstrated, during the progress of his pathological researches, extending from 1856 to 1886, the power of the colorless corpuscles of human blood to feed upon and appropriate the hæmaglobin, hæmatin, and hæmin of the colored blood corpuscles in the blood vessels of malarial patients, before physiologists had experimentally determined, by employing either finely divided fatty substances or coloring matters, the power of the colorless blood corpuscles of taking solid particles into their substance.

We have thus traced the pigmentation of the colorless blood corpuscles in malarial fever to

(a). The destruction of the colored blood corpuscles by the morbific ferment, or micro-organism of malarial fever.

(b). The coloration of the hæmaglobin, hæmin, and hæmatin, and its appropriation by the colorless blood corpuscles in virtue of their physical and vital principles and amœboid movements.

(c). The invasion of the colorless corpuscles by the colored spores of the malarial bacillus.

12. *Increase of water in the blood of malarial patients.*—Chemical analysis has shown that normal healthy human blood frequently yields 150 parts, in the 1000 parts of blood, of colored blood corpuscles in the dried *(anhydrous)* state. The dried blood corpuscles do not represent the true relations of the moist blood corpuscles to the liquor sanguinis of the living human blood as it circulates through the vessels. The number of moist (normal colored blood corpuscles) is obtained by multiplying the dried corpuscles by four. We thus obtain for healthy human blood the following composition:

1000 parts of healthy human blood contains

Moist red globules,	600
Liquor sanguinis,	400

In prolonged or chronic malarial fever (malarial toxæmia or cachexia) the author has found the dried blood corpuscles to be reduced to 50 parts in the 1000 parts, and in some cases as low as 30 parts in the 1000 parts of blood.

If we accept the first figures, the following will represent my constitution of the blood in chronic malarial poisoning:

1000 parts of human blood in chronic malarial fever contains—

Moist red globules,	250
Liquor sanguinis,	750

We have in the preceding changes of the blood, induced by the action of malarial poison, an explanation of the sallow, anæmic complexion, the feeble, irritable action of the heart, the depressed muscular power and mental forces, and the bloated countenance, protuberant belly, and swollen, anasarcous limbs.

13. *Diminution of the Fibrin of the Blood.*—The persistent and uniform deviation of this constituent of the blood in uncomplicated cases of malarial fever distinguishes this from the true inflammation and the fever accompanying local inflammation; and also affords an explanation of the tendency to hæmorrhages in many endemics of malarial fever.

PRACTICAL OBSERVATIONS ON THE TREATMENT OF MALARIAL (PAROXYSMAL) FEVER.

Of 2,327 cases of the various forms of intermittent fever (quotidian, tertian and quartan), only 5, or about 0.21 per cent., terminated fatally. The mortality in remittent malarial fever was greater, the deaths numbering 7 in a total of 247 cases; per cent. of mortality 2.83. One-half (50 per cent.) of the cases of malarial hæmaturia terminated fatally; and more than one-half the cases of pernicious congestive malarial fever died; or, more exactly, 56 deaths in 87 cases (64.3 per cent.). The deaths from chronic malarial cachexia were more numerous than in the intermittent and remittent fevers, but less than in the pernicious and hæmorrhagic forms; 14 deaths occurring in 212 cases, or a mortality of 6.6 per cent.

The fatal cases of intermittent fever were complicated with intercurrent diseases. It is evident from the preceding statistics, that the treatment adopted by the author yielded results corresponding with the nature, severity, preceding duration and effects of the various types or varieties of the malarial diseases.

In an effort to formulate the general plan of treatment pursued in these cases, it is evident that the remedies were necessarily adapted to the natural progress and history and visceral complications of each class and condition of the malarious manifestations; and for purposes of clearness and precision and brevity we will present the practical results under the following heads:

1. ACUTE STHENIC, INTERMITTENT AND REMITTENT FEVER, OCCURRING FOR THE FIRST TIME IN HEALTHY INDIVIDUALS.

Numerous cases have come under my observation of treatment of natives of Europe and of the healthy non-malarial districts of the United States of America, who have been attacked by the various forms of intermittent and remittent fever for the first time in the history of their lives. Thus I have seen entire crews of Northern sailors stricken with intermittent and remittent fever shortly after their arrival in the Southern rivers bordered by extensive swamps and marshes.

Natives of Ireland, France, Germany, Italy, Spain and England, who work for the first time upon the railroads and in the swamps, rice-fields and marshes of Georgia, South Carolina, Alabama, Lousiana, Mississippi, Arkansas and Texas, are subject to the most

violent forms of intermittent and remittent fevers in the months of July, August, September and October. Such cases, if imperfectly treated or abandoned to the powers of nature, either perish in the acute stages of the malarious disease, or suffer repeated attacks of chills and fever, and during the repeated congestions of the internal organs, add the oft recurring cold and hot stages, are gradually reduced to a most distressing and dangerous condition. The repeated and prolonged action of the malarial poison induces destruction of the colored blood corpuscles, anæmia, hepatic and splenitic enlargements and indurations, aberration, nervous phenomena, neuralgias, muscular prostration, and general anasarca.

Whilst it may be true that a certain percentage of cases of intermittent fever in comparatively healthy localities, especially when the individual moves out of the malarial region in which the disease has been contracted into a non-malarious district, may recover spontaneously without the exhibition of quinine, or any other remedy. This statement does not apply to the swamps, marshes and rice-fields of our Southern States. In these low, moist, malarious districts, the poison of malarial fever is ever present, and while it may slumber and hibernate during the coldest weather of the year, it returns in the spring time, with the vegetation, and attains its maximum intensity in the months of July, August, September and October.

If this disease be often self-limited in its character, and terminates in health either from the elimination of its cause, or the exhaustion of susceptibility to its action, or from the "*curative powers* of nature," such favorable termination is only possible in healthy non-malarious localities, and appears to be wellnigh impossible in such regions as the swamps, marshes and rice-fields of our Southern States.

Many cases of intermittent and remi.tent fever which appear at the outset to be devoid of danger, frequently assume without warning highly dangerous characters. It is, therefore, manifestly impossible to predict at the commencement of an attack what its subsequent symptoms, course and termination may be. In this disease, in which the virtues of quinine as an *antipyretic* and *anti-paroxysmal* and *antiseptic* remedy, are well established, there is no excuse for delay and indecision; "*to wait for a remission*" may be "*equivalent to the loss of a patient*," and has been justly termed "*a meditation on death.*"

Holding these views, the author has used purgatives and quinine at the onset of the disease, and continues the use of quinine in full doses, regardless of the stage of remission or intermission, or febrile excitement. Whilst unloading the portal circle, and relieving the congestion of the brain, liver and spleen by mercurials, quinine also has been simultaneously administered. Thus 10 grains carb. of calomel and sulphate of quiniæ, followed in four hours by one fluid ounce of castor oil and from 5 to 10 gr. of quinine, administered promptly in the onset of intermittent and remittent fever, not only causes free evacuations of the bowels, but also arrests the fever, and places the system in the proper condition for the subsequent action of quinine. Quinine was then administered in doses of 5 or 10 grains, until from 15 to 40 grains were administered during the twenty-four hours.

After the complete subsidence of the fever, quinine is not abandoned, but administered, from 10 to 20 grains each day, for at least one week after the fever; and subsequently from 5 to 10 grains each day, for at least ten days longer; and where the patient is compelled to remain in the malarious atmosphere exhaled from swamps, marshes or rice-fields, he was advised to use quinine as a prophylactic, often combined with iron and arsenic during the months of September and October.

In those cases in which the stomach was too irritable to retain the quinine, it was used externally or by enema. For external administration the following formula has been found to be useful:

℞. Quin. sulph..... ℥i.
Linam. saponis.....
Olei olivæ. ..... aa f℥iij.
S. Use as a liniment under armpits (axillæ), on the inner surface of thighs, on the abdomen and spine, every two, three, or four hours.

This liniment is efficient also in the treatment of malarial fever occurring in children, who take quinine by the mouth with great reluctance.

When quinine is administered to the adult as an anti-malarious remedy in intermittent and remittent fever, neuralgia, brow-ague, and in cases of rheumatism, pneumonia and pleuritis resulting from cold, damp and marsh air, and which show a periodic or intermittent character, it should be given *alone*, and in large doses at regular intervals;—thus, beginning with 10 grains, followed by the same or half this quantity (5 grains) every four hours, until the frequency of the pulse is lowered, the fever heat is diminished, and the ears ring. Sugar-coated quinine pills as furnished "by the wholesale" from the manufacturing druggists and chemists, should be universally abandoned by the medical profession in malarial regions, because their insolubility renders them incapable of rapid assimilation by the enfeebled and irritated stomach. The use of these and other manufactured pills often causes the loss of precious time, frequently deceives both physician and patient, and ensures a fatal result when recovery should have been certain, if *quinine* and *quinine alone* had been administered by the mouth or rectum, or by subcutaneous injection. I have seen these sugar-coated quinine pills, and the so-called quinine capsules, pass through the bowels in intermittent and remittent fever unchanged with the discharges of the bowels. When the bowels are in active motion and the doctor is pouring in his "elegant commercial manufactured sugar-coated and gelatine embalmed quinine pills," they may sometimes be heard falling upon the bottom of the chamber rattling like buckshot or dried pease.

In all serious cases of malarious disease, where the object of the physician is to produce a prompt and decided impression, *quinine is best given alone;* each dose may be stirred in a wineglassful of pure water or wrapped up in moistened wafer paper (to be had of any pastry-cook) and swallowed as a bolus. Pills

of the bisulphate of quininia, which may be prepared extemporaneously, with dilute aromatic sulphuric acid, may be used in some cases with benefit, but it sometimes occurs that this form of the sulphate is too irritating to the gastric mucous membrane. In like manner the solution of the quinine in water by the aid of citric or sulphuric acid may prove useful, provided the acid solutions do not irritate the stomach.

As a general rule, I have not employed digitalis, aconite, veratrum viride and gelsemium in intermittent and remittent fever, but trusted chiefly to the sulphate of quinia. In like manner, opium, hydrate of chloral, morphia, belladonna, hyoscyamus and the bromides, were used as adjuvants to quinine when necessary. Without doubt digitalis, veratrum, gelsemium, opium and its preparations, chloral hydrate, chloroform and bromide of potassium may be indicated in certain cases, and I have used one and all of these drugs to fulfil certain indications, but I have never lost sight of the fact that *quinine* was the great agent for the arrest and cure of the paroxysmal fevers. Chloroform used in large doses to arrest or abort the cold stage has, according to my experience, proved destructive to life, when administered by others. I regard the practice of giving large doses of either chloroform or tincture of digitalis in the cold stage of malarial fever as dangerous. Salicine, salicylic acid and salicylate of soda have proved useful in the treatment of the various forms of fever, and especially in rheumatic fever, as depressors of temperature, and even as cathartic agents in malarious fevers, but these remedies have never, in my hands, equalled or superseded the sulphate of quinia.

2. INTERMITTENT FEVER OF LONG STANDING.

The prolonged action of the malarial poison will often cause congestion of the internal organs, induces profound alterations in the blood, and structural changes in the liver and spleen. The frequent occurrence of *interstitial hepatitis* and jaundice, as well as irregular action of the heart, debility of the capillary circulation and general anasarca, characterize the chronic stages of malarial fever. The indications for treatment are:

1. To arrest the paroxysms.
2. The regulation of the hepatic and renal secretions.
3. The restoration of the impoverished and watery blood to its normal condition.
4. The improvement of digestion and assimilation, and the restoration of the nervous and muscular forces.

To accomplish the first indication, quinine and arsenic are most reliable agents. The latter should be administered in such doses as not to irritate the stomach. Comparatively small doses of arsenious acid, administered at regular intervals, often accomplish great good in obstinate, protracted cases of malarial fever. I have freely used Fowler's solution of arsenic in doses varying from 6 to 12 drops, every four, six or eight hours. Ten drops of Fowler's solution, given one hour after each meal, has been beneficial in protracted intermittent fever, marsh cachexia; and especially when the tincture of iron was administered (properly diluted) in similar doses, one hour before each meal, in order to fulfil the third indication. Quinine was also administered in these chronic cases, according to the indications, in from 3 to 6 grains three times a day. The quinine was frequently added to and administered with the solution of the tincture of iron.

During convalescence, infusions of Virginia snakeroot (aristolochia serpentaria) and of quassia were used, with the result of improving digestion and increasing the muscular force. Nux vomica (in powder, extract or tincture), and solutions of strychnia, proved of permanent benefit in protracted cases, especially when administered in conjunction with tincture of iron and the mineral acids.

In hepatic derangements caused by the action of the malarial poison, nitro-muriatic acid, administered internally, and applied externally in the form of the footbath, or used locally over the region of the liver, possesses great value. The tincture of iron, as well as the nitro-muriatic acid, possesses the power of giving tone and power to the muscles, and especially to the muscular fibres of the heart—a remedy of great importance in the anæmic state induced by the action of the malarial poison.

Although apparently not reduced in flesh; but, on the contrary, with bloated and swollen countenances and limbs, the miserable anæmic, sallow victims of the prolonged action of the malarial poison suffer from a feeble cardiac action, often accompanied with a murmur; they are incapable of prolonged muscular effort, panting for breath upon the slightest exertion, and suffering with violent palpitation of the heart, dizziness and imperfect vision. The distress is often very great when such patients attempt to ascend the stairs; the heart beats tumultuously, the "head swims," and the trembling patient sinks down exhausted—overwhelmed by muscular and nervous weakness, and irregular action of the circulatory and respiratory apparatus. Both the cerebro-spinal and the ganglionic (sympathetic) systems are depressed in their action and deranged in their functions; and the ganglia of the heart are necessarily deeply affected by virtue of their increased activity in sickness as well as in health; and the muscular fibres of the heart, supplied with anæmic blood, containing the micro-organisms of malarial fever and the noxious results of their chemical actions, necessarily manifest feeble and spasmodic actions.

Under the judicious and persevering use of quinine, iron, arsenic, strychnine, and the tribasic phosphate of iron and lime, these distressing symptoms gradually pass off; the patient loses the local cardiac murmur, the action of the heart becomes slow, regular and vigorous, the cerebro-spinal and sympathetic systems regain their tone and vigor, the intellect is again able to perform its functions, the liver secretes normal bile, the blood regains its lost colored corpuscles, the surface of the face and body resumes its healthy appearance, and the patient is able to resume his normal occupation.

It is well known that neuralgia of a strictly periodical character often prevails in the same localities and seasons, preceding alternately with and succeed-

ing to periodical fevers, exhibits the same types and phenomena of intermission and remission. Periodic neuralgia is therefore produced by the same morbific ferment as intermittent and remittent fevers, and yields most readily and surely to the same general plan of treatment. In this painful and most distressing manifestation of the malarial disease our reliance must be in the free administration of quinia, often combined with opium, morphia, hydrate of chloral, belladonna, and hyosciamus. One-fourth of a grain of morphia with gr. $\frac{1}{150}$ to $\frac{1}{75}$ of atropia, injected subcutaneously, has proved beneficial. Morphia and the preparation of opium should be used with caution by the physician in obstinate cases of neuralgia, in order that the "*opium habit*" may be avoided.

3. PERNICIOUS OR CONGESTIVE MALARIAL FEVER.

In the algid form characterized by rapid, feeble pulse, cold extremities, and prostration of the nervous and muscular forces, when the intellect is clear, the main indications are

1. To bring the patient under the influence of quinine at the earliest practicable moment.

2. To restore the general and capillary circulations, and invigorate and support the action of the heart by the judicious administration of diffusible stimulants and by the external application of sinapisms and heat.

In cases characterized by coma, blisters should be promptly applied to the back of the head and neck, and on the epigastrium, and if the bowels are not loose, a full dose of calomel should be administered by the mouth. Notwithstanding the profound coma which characterizes this class of cases, pressure over the region of the stomach and loin will almost always elicit groans, cries and signs of distress from the patient. The author has been led, by the results of his extended experience in civil and military practice, to regard the prompt application of a large blister, six by six inches, or eight by eight inches, over the region of the stomach and loin, as a measure of great value, which may, in some instances, be the means of preserving life.

The use of such agents as chloroform, digitalis, aconite and veratrum viride in the pernicious forms of malarial fever, according to the experience of the author, is attended with great danger. The injudicious use of chloroform and of tincture of digitalis has, in some cases, caused death by depressing still further the feeble nervous cardiac powers.

The large proportion of the so-called *congestive* cases have been the victims of the prolonged action of the malarial poisons before the sudden development of the dangerous *(pernicious)* symptoms, and manifest the profound action of the malarial poison in the sallow, anæmic, jaundiced countenance, and enlarged liver and spleen. In fatal cases the cortical substance of the brain is frequently found of a dark, almost chocolate color, from the deposition of pigment granules and pigment cells within and around the cerebral capillaries, the pigmentation being most marked in the gray substance of the cerebrum and cerebellum. The enlarged liver presents marks of interstitial hepatitis, with deposits of blood and biliary pigments in the capillary net-work of the lobules. The enlarged spleen resembles a bag of soft, dark, purplish-black mud, and has so little consistency that it can with difficulty be removed without rupture of its capsules and trabeculæ. This black splenic mud contains, in addition to the other constituents of the blood, numerous pigment particles and pigment-cells.

The hopeless character of many of such cases is fully revealed by the results of post-mortem examinations, and the tedious character and slow progress of those which recover is in like manner rendered evident.

If the physician succeeds in arousing his patient from the "*fatal*" paroxysm, his subsequent efforts to restore the blood and organs to their normal condition must be based upon his knowledge of the characteristic lesions of malarial fever, and the therapeutic value and application of quinine, arsenic, and iron. Change of climate is of great importance in the after-treatment of the pernicious forms of malarial fever, but few patients have the necessary means to enable them to make the change of locality and climate.

4. HÆMORRHAGIC MALARIAL FEVER; MALARIAL HÆMATURIA.

Hæmorrhagic malarial fevers prevail in certain seasons and in certain localities, and appear to be aggravated by the dangerous system of *rice culture.* The year 1880 was characterized by the prevalence of severe forms of malarial fever, often attended with hæmorrhage from the stomach, bowels and kidneys. This hæmorrhagic malarial fever prevailed in greatest severity in all those portions of the Delta of the Mississippi in which rice was cultivated, namely, from the mouth of the Mississippi to the hills of North Louisiana and Tennessee. Those cases which came under the immediate observation of the author, in 1880, presented all the symptoms and characteristic lesions of chronic malarial toxæmia, various degrees of hepatic derangement and jaundice, profound anæmia, sudden remissions and intermissions. Beyond a tendency to passive hæmorrhages, these cases presented nothing in common with yellow fever. Even under the most energetic and judicious use of such remedies as quinine, tincture of iron, and fluid extract of ergot, the results were unsatisfactory and uncertain. and a large proportion of the cases terminated fatally.

Fortunately, hæmorrhage from the kidneys is of comparatively rare occurrence during the progress of malarial fever in many portions of our Southern and South-western States; and the form of malarious disease called *malarial hæmaturia*, is comparatively rare in New Orleans. If the kidneys suffered equally with the liver and spleen in the periodic congestions of the various forms of malarial fever, this would prove to be an almost universally fatal disease.

The results of treatment in malarial hæmaturia will depend largely upon the extent and character of the lesions of the kidneys.

When these organs are profoundly involved, and hæmorrhage occurs extensively into the Malpighian capsules and fubrili uiriferi, the function of these

organs is necessarily greatly impaired, and often completely arrested, and the patient dies from uræmic poisonings and in convulsions. In most cases of malarial hæmaturia, the physician has to deal with the profound lesions of the blood, nervous system, liver and spleen, induced by the preceding prolonged action of the malarial poison; it is therefore not to be wondered at that many and very diverse plans of treatment have been recommended in this most dangerous and fatal form of disease.

No specific rules can be laid down to meet the indications of each and every case; many are so slight as scarcely to be ranked with malarial hæmaturia, and recover under the most mild measures; whilst in others the lesions preceding and attending the attacks are so grave as to preclude all hope from any plan of treatment now known to the medical profession. In those cases in which the author has been able to institute chemical analyses of the blood, the fibrin has been increased to a marked degree, and in every case he has found derangements of the hepatic functions and secretions.

Benefit has been derived in some cases by combining small doses of calomel with full doses of the sulphate of quinine. The fluid extract of ergot and the tincture of iron have accomplished good in some cases. When the patient vomits incessantly large quantities of green and blue bile, and at the same time is affected with profuse discharges (sometimes bloody) from the bowels, quinine, calomel and other remedies can be administered neither by the mouth nor rectum, and the physician must resort to inunction, and to subcutaneous injections. Quinia, morphine, and minute quantities of atropia, also the fluid extract of ergot, have been administered hypodermically with benefit.

(To be concluded.)

ON THE USE OF SO-CALLED ANTIPYRETIC DOSES OF QUINIA IN TYPHOID PNUEMONIA.[1]

BY O. T. SCHULTZ, M.D.,

OF MT. VERNON, IND.

The practice of administering large doses of quinia in pneumonia, which originated in the German antipyretic school of therapeutists, and was recommended by them as a substitute for, or rather as an auxiliary to, the cold bath, does not seem to have found much favor with the American physicians; for referring to latest authors only, we find it not at all mentioned by Davis in his book on "Practice," and very inadequately mentioned by Loomis in Pepper's "System of Medicine." And yet quinia in large, so called antipyretic, doses, properly administered, is a very careful and a very valuable therapeutic measure in the treatment of pneumonia, and more especially of its typhoid form, and merits more confidence than has been hitherto bestowed upon it, not, however, it would seem to me, on account of its power to reduce the temperature, to which Loomis and the Germans would limit its beneficial action in pneumonia, but on account of some power *sui generis* which quinia seems to exert on the diseased process of low essential fevers.

It shall be my aim to show to-day, 1st, what effects accompany the methodical exhibition of so-called antipyretic doses of quinia to cases of typhoid pneumonia, and, 2d, what precautionary rules must be observed in administering such doses.

Before entering upon the subject at all it will be necessary for me to briefly define my position on certain mooted points that have a bearing on the question at issue, such as to the action of typhoid pneumonia, as to the relation of malaria to the pneumonias that occur in our region of country, and as to the manner in which quinia benefits essential fevers that have a marked tendency to asthenia. I will first state that Mt. Vernon is a small country country town near the confluence of the Ohio and Wabash rivers, and that my practice largely lies in the "bottoms" of these rivers, and among farmers more or less exposed to the vicissitudes of a country that is being more opened up and brought under cultivation. Also that from May, 1875, to May, 1886, I have had under observation 238 cases of croupous pneumonia, but few of which presented the sthenic type, and that owing, as I claim, to the course of treatment pursued, I have had the low mortality of 6.50 per cent. Further, that in addition to the quinia administered according to the rules presently to be given, my typhoid pneumonia cases received phosphide of zinc as soon as the symptoms took on the "typhoid" character, and that camphor, or in advanced stages, digitalis and camphor, were resorted to as soon as signs of cardiac failure began to appear.

As to the action of "typhoid" pneumonia, increased opportunities of observation force me to still maintain the opinion expressed by me in a paper entitled "Observations on Pneumonia," *American Practitioner*, August and September, 1879, p. 94, *et. seq.*, that this form of pneumonia is not a distinct entity of disease, nor due to a potential causative principle, but "that it is a croupous pneumonia, that in our enfeebled constitution runs an adynamic course;" and that "gives a cause sufficient to produce a croupous pneumonia of moderate severity and the constitutions, such as the far larger portion of our patients present, and the disease must necessarily run a *typhoid* course."

My position as to the complication of malaria with pneumonia is expressed in the same paper, p. 97, in the following words: "The complication with malaria manifested itself in the same way and pursued the same course as when malaria is superadded to any other disease; and as little as we would be justified on this account of speaking of a miasmatic bronchitis or a miasmatic pertussis, would it be proper to call this even miasmatic pneumonia with Wood and Da Costa." I would add that except in cases in which a direct complication of the two diseases was present, when the exacerbations of the fever at the time of the ague paroxysms, with the consequent enormous increase in all subjective symptoms might well give color to the invention, by inaccurate ob-

[1] Read in the Section on Practical Medicine, at the Thirty-Seventh Annual Meeting of the American Medical Association.

servers, of the myth of an intermittent or remittent pneumonia, with the imagined disappearance of all *objective* symptoms of the disease in the intervals between the paroxysms, *malaria showed its influence only in its vitiating effects upon the constitution of my patients, in weakening their powers of resistance and invaliding important organs.* Judging by what I have seen of "bilious" pneumonia, this variety of pneumonia, which also is claimed to be brought about by a complication of pneumonia with malaria, has no more right to independent existence than intermittent or remittent pneumonia. Extension of the gastric catarrh to the duodema and to the bile ducts frequently enough gave rise to the so-called "bilious" symptoms; a mild degree of icteros was also usually present, and in a few cases there was marked jaundice, but in no case could these symptoms be set down as due to malarial infection.

How quinia accomplishes good results in the treatment of typhoid pneumonia has not as yet been determined. I opine that it is not by its fever lowering property, for I have seen the general condition of my patients improved even when no impression was made on the temperature; and then, the pyrexia of our typhoid pneumonia is rarely very high, the temperature but rarely exceeding 103°, and varying usually from 101° to 103°. I have never seen a temperature above 105°, and a range from 103° to 105° was found in but a few cases during a year's practice. Yet notwithstanding this low grade of fever, our typhoid pneumonia is a very *fatal* disease, and quinia given in large—antipyretic—doses may not reduce the morning temperature at all and yet very favorably influence for good the course of the disease. There seems to be inherent in quinia, when given in large doses, a specific power of so influencing diseases attended with great and rapid tissue metamorphosis, and retention of the waste products of such tissue changes in the system, that these diseases take on a more favorable course and come to a more happy issue under its use. The same conclusion seems to apply to pneumonia that I draw for typhoid fever. "It would seem that quinia neutralizes in the system or discharges therefrom the causes or the products of the typhoid fever poison, and that its influence is not limited to the time the drug remains in the body, but continues until these causes of typhoid fever, or the waste products of the same, have been removed or have reaccumulated." (*American Practitioner*, November, 1885, p. 287.) The influence of quinia on the temperature is in these fevers a matter of secondary importance; moreover, its antipyretic action seems to be an outcome of its specific power, for it is greatest and most searching in those fevers in which tissue metamorphosis forms an important factor in the maintainance of a high degree of pyrexia, while it is far less outspoken in those diseases in which fever seems to be due more to an exaltation of the nerve centres.

But if quinia has this specific action on essential fevers with adynamic tendencies, and the reduction of the temperature is but one of the manifestations of this virtue, the indication for the employment of this remedy in these fevers must not be sought in the pyrexia with which they are attended, but in the nature of the disease itself, and the quinia must be administered in such a manner as to best obtain its its fullest specific influence, be the fever a pyrexia of a high or a low grade. This is accomplished by giving the drug in a *form* in which it is most rapidly and most completely absorbed; in a *quantity* that will insure its full physiological effects; at a *time* when the height of its action will tally with the normal diurnal declension of disease; and in a *frequency* that a new dose is introduced as soon as the beneficial effects of the previous one have become exhausted. This method I have followed out for over ten years in typhoid pneumonia, and since 1881 in typhoid fever, and its advantages in the treatment of the latter I have endeavored to show in my paper, "Has Quinia a Specific Action on the Diseased Process of Typhoid Fever?" (*American Practitioner*, November, 1885.)

The method pursued by me, and the objects I seek to accomplish by this methodical use of quinia in these fevers, appear to be identical with the course followed out and the ends striven for by Pecholior in typhoid fever, as reported by Charcot to the French Academy of Sciences (vid. *Therapeutic Gazette*, November, 1885, p. 770).

1. What effects attend the methodical administration of large doses of quinia in typhoid pneumonia? I shall discuss this question under the following heads: 1, the effect of quinine on the temperature; 2, on the heart; 3, on the lungs; 4, on the course and the termination of the disease.

The Effect of Quinia on the Temperature.—A dose of quinia given in the evening will usually cause reduction of the morning temperature of 2° to 5°, the temperature beginning to fall within an hour after the taking of the quinia and continuing to decline for a number of hours, the fall being attended with a profuse sweat or not, and accompanied with more or less signs of prostration, which at times amount to partial collapse. In a certain number of cases the morning temperature is as high as it was before quinia was given. It is impossible to foretell in which cases the temperature will not be reduced; the fever may be of a high or of a low grade, and the disease in its earlier or later stages. The cases in which this occurs are not numerous, but they always prove obstinate and dangerous. During the day following the administration of quinia the temperature again gradually rises, and either by night or, in more favorable cases, by the evening following, the temperature is as high or higher than it was when the quinia was given.

The impression which quinia produces on the temperature is more pronounced during the latter than during the earlier part of the disease, and even in cases that terminate fatally the temperature is still greatly influenced by the quinia during the latter half of the pneumonia, but its action is more evanescent, a higher temperature replacing the lower more quickly. Defervescence may follow any of the doses of quinia, the temperature either falling to the normal and not again rising within a few hours, or the declension not being so great, and the fever again

rising to less than the former height by the next evening, and then gradually and steadily falling to the normal within the next twenty-four or forty-eight hours. A profuse perspiration usually accompanies the falling of the temperature. It may, however, be absent, or only a slight moisture may be present, even when the morning temperature is greatly lowered. The sweat is more often absent or but slight during the earlier days of the disease, while during the latter days it is rarely absent, and a profuse drenching and offensive flow usually occurs after every dose. These sweats seem to be of favorable import; the patient's condition is better in the morning when the sweat has taken place, even when the temperature is not much reduced; besides, the absorption of the exuded nausea seem to take place more rapidly when the sweats are profuse.

The Effect of Quinia on the Heart.—After an evening dose of quinia the pulse in the morning is stronger, fuller, slower by ten to thirty beats, more regular, if dicrotism or intermissions were present, these have disappeared; the heart's action is prompter, stronger, more distinct, the valves close more sharply and more completely. This improvement is independent of any effect on the temperature, for I have repeatedly observed it, where the temperature would have remained entirely unaffected by the quinia. There comes a time in severe cases of pneumonia, when the heart's impulse is imperceptible to the eye or touch, when its area is enlarged, the action is indecisive, without power, hesitating, the beats are unequal in form and as time progresses become unequal also in time and rhythm and intermittent; the sounds are widely diffused, it is impossible to locate them, they are indistinct, muffled and accompanied with a blowing sound. The pulse with this condition of the heart is empty, hesitating, barely perceptible, some beats fail to reach the finger. This condition of imminent heart paralysis is not brought about by the high temperature alone, for I have seen it in cases that have never registered more than 103° and that only for a few evenings, but is due to an innate weakness of the cardiac muscle in persons broken down by previous disease, bad nourishment, exposure, imtemperance, overwork and old age. If a large dose of quinia be administered in the evening and care be taken to guard the feeble heart against the early depressing effects of the remedy, the heart's action becomes steady, strong, and more effective, a load seems to be removed from the heart. This effect may be obtained time and again in the same case, until either the improvement becomes permanent with established resolution and defervescence, or else the symptoms of cardiac exhaustion become more and more pronounced after each temporary improvement and finally culminate in paralysis. I have learned to regard one behavior of the pulse with great apprehension, and as an indication for an early beginning of the quinia treatment. In many cases, which show all signs of the adynamic and the local symptoms of "typhoid" pneumonia, the pulse with a temperature of 103 and over remains remarkably slow, 80 to 100, for so severe a disease, and for the amount of prostration that is present, it is thus hard, strong, regular, equal, some cases show dicrotism, in others this is absent, suddenly the heart breaks down without any increase in the fever, sometimes early in the course of the disease, but more usually by the fifth or sixth day. These cases are hard to rally, the signs of cardiac exhaustion once being established; the heart can by constant spurring, be made to perform its work moderately well for three or even four days, but at last it fails. I have seen such cases in the old as well as the young.

When the temperature of the fever has been reduced to nearly normal by a large dose of quinia, the pulse is usually also reduced to 80 or 88, though sometimes it remains more frequent. It differs, however, greatly from the soft, compressible pulse of final defervescence, the pulse of the quinia apyrexia being hard and sharp. It retains this character for some hours, and then becoms soft and frequent, several hours before the thermometer in the axilla will detect any increase in the fever. As the temperature ascends to its former height, the pulse resumes the character which it had before the quinia was given.

The Effect of Quinia on the Lungs.—The frequency of the respirations is somewhat diminished after a dose of quinia; not, however, in equal proportion with the frequency of the pulse. Thus, while the pulse-beat may be reduced to 80–88, the respirations may still register 28–32. Quinia does not prevent hyperæmia of the lungs, nor does it hinder hepatization from taking place, as new lobes will be invaded during the course of pneumonia even when the system is fully cinchonized. Thus in a boy of 20, in whom a lower right pneumonia was recognized on the second day, and who was taking quinia gr. 10 at 6, 9 and 12 o'clock on the third and fourth days, because a chill coming on at 4 P.M. of each day made me suspect malarial complication, hyperæmia and congestion were made out in the lower left lung in the afternoon of the fourth day, and hepatization was completed by the fifth day. And in a man, æt. 44, in whom a lower left pneumonia was discovered on the first day, and quinia gr. 10 was given at 6 P.M. and at 6 A.M. of the third day, because a chilly sensation would occur every morning, infiltration of the middle right lung was made out on the third day, two hours after the last dose of quinia had been given, the temperature at this time being 99, and the patient being in a violent chill. I have several similar cases on record.

Quinia does not hasten resolution, but it seems to stimulate absorption when once resolution has set in. In cases in which a new lobe would be involved in the course of the pneumonia, the lobe originally affected may clear up and become resonant within a few days. I have seen this when the expectoration would hardly amount to a tablespoonful during the twenty-four hours, and when the case would eventually terminate fatally.

Quinia retards the development of œdema, and even causes the retrocession of its milder grades. It has, however, no influence over fully developed and far advanced œdema. On the contrary, it seems that during the stage of depression that primarily follows the quinia, notwithstanding the most careful husband-

ing of the patient's vital powers, œdema may develop to such a degree that the lungs are overwhelmed thereby.

The Effect of Quinia on the General Condition of the Patient.—The patient's general condition is greatly improved by the quinia. The dry tongue becomes soft, the sordes disappear, the mind becomes clear, delirium vanishes, and even when the disease is destined to terminate fatally, and exhaustion is immense, a partial stupor is the only brain symptom present during the period of improvement that follows after the evening dose of quinia. The bowels give no trouble. The passages rapidly diminish in frequency; thus, in a case seen a few days ago, there were twelve stools per diem before quinia was given. After the administration of quinia gr. xxx the number was reduced to four, and after the next dose to two, at which they remained until convalescence was established. The patients hold their strength better, are able to help themselves, retain perfect control over bowels and bladder, and while under the influence of the quinia do not present much evidence of the gravity of their condition.

The Effect of Quinia on the Course and Termination of the Disease.—Since my typhoid pneumonia cases are always treated with phosphide of zinc and the large doses of quinia, it is not difficult to determine the influence of quinia on the course and the termination of the disease. This form of pneumonia pursues, under the treatment adopted by me, a very mild course; severe brain and bowel symptoms are absent; the heart is protected, and when it flags can usually be spurred on to pursue its work efficiently; œdema sets in late, its milder grades are recovered from, and death in the severer grades is pushed out many days; the pneumonic exudate pursues its normal course to perfect resolution—purulent infiltration I have met with but a very few times; the patient's strength is preserved remarkably well, and he needs less careful and less intelligent nursing; his convalescence is rapid and complete; the mortality is greatly reduced.

I cannot say whether the *duration* of the disease is shortened or not. Typhoid pneumonia is at the best a tedious disease, resolution rarely or never occurring before the eighth or ninth day. At times, we confidently look for resolution from day to day, but it fails to come on, the treatment serving merely, it seems, to keep the vital machinery in motion, but not powerful enough to spur it on to bringing the disease to a close; or if resolution does occur at this time, the bronchi are overcrowded with loosened exudations, which there is no cough to expel. Such cases clearly prove that quinia exerts no power over the *local* manifestation of pneumonia; but that, as in typhoid fever, it moderates the *systemic* disease and protects the organism against its ravages.

What Rules must be Observed in Administering Quinia in Typhoid Pneumonia?—In order to obtain good results from quinia in typhoid pneumonia certain principles must be carefully observed in the administration of the remedy: Quinia must be resorted to *early* in the course of the disease, as soon as the "typhoid" character of the pneumonia becomes apparent. The *disease itself* constitutes the indication for the exhibition of the drug, and the indication is modified by excessive temperature and by an early failing of the heart, only in so far as these furnish extra grounds for the giving of more frequent and larger doses.

An ordinary pneumonia, that shows no typhoid symptoms, without an excessive temperature demands no quinia at all; although, knowing how suddenly and how usually a change into an asthenic condition occurs in the cases that I have to treat, I make it a point to begin giving large doses of quinia regularly by the *fifth* day to these cases also.

If the disease shows adynamic symptoms from the first, or runs along with a temperature above 103, or in individuals in whom I anticipate early cardiac exhaustion, quinia is given as soon as the pneumonia is recognized. The quinia should be given in one large dose, gr. xv, xxx or more, in solution with muriatic acid, at about 7 o'clock in the evening. This dose should be given *every* evening if the evening temperature range 102° or over, or if with a lower temperature the heart is very weak. It should be administered *every other* evening if the patient's condition is good, the temperature of low grade, and the heart's action steady.

This course is to be kept up until the evening temperature is normal, defervescence having taken place, or until it shows by a steady fall from evening to evening that the disease is about to terminate by lysis.

The *size* of the dose, the *manner* of giving the quinia and the *time* when it must be given, are of the utmost importance. It is surprising that at the present time practitioners should continue to administer 1, 2 and 3 grains of quinia every two or three hours in malarial fevers, and then complain that they must resort to iodine, carbolic acid, etc., in order to relieve these patients. Equally astonishing is it to find at this day, when pharmacological record and a mass of clinical experience have settled certain questions with regard to quinia beyond a doubt, physicians exhibiting quinia in 2, 3 or 5-grain doses every three or four hours in pneumonia from the beginning, and then hear them announce that they derive no benefit from this drug, or attribute fancied advantages to the remedy that are plainly due either to accident or to the line of treatment pursued side by side with the quinia. The dose of quinia must be *large, very large*, and given at *one* time, to insure the full physiological effects of the drug, and it must be administered not in a capsule or in a weak solution, but in an *acid solution*, so that its rapid absorption may be made certain. As to the *time*, the normal deviation of the body heat must be borne in mind, and the dose given at an hour when its effect will aid the powers of nature to lower the fever. The natural tendency is to a lower morning temperature, and this tendency must be taken advantage of and the normal morning downfall must be emphasized by a large dose of quinia given in the evening.

The prostration that follows shortly upon taking the quinia must be guarded against. It may be very great and almost amount to collapse, and during its

presence the dreaded œdema may establish itself, or if previously present may be fatally increased. It is always a momentous question with me to weigh in a case of far advanced cardiac enfeeblement the indefinite resisting power of the heart, against the equally indefinite results of the dose of quinia I think necessary to administer to my patient. If, however, I have made mistakes in deciding this question, it has so far always been in underestimating the vital powers of my patient, and overestimating the injurious effects of the medicine. For when I review my fatal cases, it is always for withholding the quinia, or giving it in inadequate doses at the critical time, that I have to blame myself.

The precautions against a dangerous prostration of the vital powers from the quinia vary with the greater or less feeble condition of the patient's heart. If the heart's action is good, regular and equal, no special guard is necessary. But if there is inequality as to force, time or rhythm with an empty pulse present, the dose of quinia should be preceded for a quarter of an hour by two or three tablespoonsful of old whisky or brandy taken next and followed as soon as great perspiration and a sinking of the strength becomes manifest, by three to five grain doses of camphor repeated hourly until the danger is over. In cases in which heart failure is fast developing with the symptoms of dilatation and insufficiency detailed above, digitalis and camphor given every three hours during the twenty-four hours, will usually so tonic the cardiac muscle that with the precedent dose of whiskey, no very dangerous symptoms will become manifest from the quinia.

In the above I have attempted to give with some minuteness, the conclusions gathered from my experience with large doses of quinia, administered in a systematic manner, in typhoid pneumonia. The importance and dangerous character of this form of pneumonia and the frequency with which the general practitioner has to deal with it, the good results that have attended the use of large doses of quinia in this disease in my hands, and the apparent want of agreement among physicians as to the value of this line of treatment are my reasons for presenting this subject to you to-day. Although I may not have advanced much that has not been said before by abler men in a better manner, still I shall rest contented if I have succeeded in directing attention anew to this subject and have thus contributed my share toward confirming this so successful mode of practice in so common and dangerous a disease, and toward making it one of the certainties of the therapeutics of the future which it ought to become be the theory by which we attempt to explain its good results, what it will.

Mt. Vernon, Ind.

THE THERAPEUTICS OF SUBNITRATE OF BISMUTH AND ASCLEPIA TUBEROSA.[1]

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That acology has been inexcusably neglected at our society meeting, is a matter of record, and this certainly is not on account of the want of material, surely not because the subject is unprofitable, for it is one of primary importance, and one that every active practitioner can, if he will, assist, if not by adding to, at least by verifying or repudiating the remedial effects credited to each one of the host of agents which go to make up the long list in our materia medica, that he may have prescribed. It would seem to be natural for the mass of the medical profession to receive the expressed opinions of a few noted members as to the efficacy of some new remedy or cause for disease, as verity itself, and overstepping the lines marked out, like magic it becomes the cure-all or cause-all of the day, and until reaction comes, in its own natural time and way, it is useless to attempt to stem the tide. To prove that this statement is true, I need only mention cocaine and the germ theory. It would seem that we could say with Ruskin: "I have little faith in my opinion until I have changed it three times." With this digression I will pass to the consideration of the subject of this paper.

Of bismuth, Pereira, in the first and second edition of his "Materia Medica" says: "The metal is first mentioned by Agricola, in 1529, and was termed by the Germans, Wismuth, so called says Matthesius 'because it blooms like a beautiful meadow on which there are variegated flowers of all kinds.' On man it acts locally as an astringent, diminishing secretion. On account of the frequent relief given by it in painful affections, it is supposed to act on the nerves of the viscus as a sedative. It has also been denominated tonic and anti-spasmodic. It was administered in cramp of the stomach, sickness and vomiting, a remedy for waterbrash, in intermittent fever, spasmodic asthma, and as an ointment in chronic skin disease. Hahnemann recommends a portion to be introduced into a hollow tooth to allay pain." Bartholow in his "Practical Treatise on Materia Medica," 1877, when speaking of the subnitrates says: "They are somewhat stringent and relieve intestinal movements. As they are nearly insoluble they pass down the intestinal tract and are converted into sulphides." The "National Dispensatory," 1884, adds nothing of value to the above.

From this, it would appear that up to the present day it has been administered empirically. Now one, and I believe that it is the *principal* therapeutic effect, lays in its power to coagulate mucus, which may be easily demonstrated by the same process that led to the discovery of this most important property. For a country physician, I have treated a large number of cases of nasal catarrh and various diseases of the throat. After washing out the nose with a solution of subnitrate of bismuth I discovered that the mucus it contained separated from the water in a coagulable mass and that the membrane was in a most admirable condition for application of the local remedies indicated. So also in post-nasal disease where the pharyngeal follicle becomes involved and exude a tenacious glairy mucus which may be moved backward and forth but resists all ordinary means for removal; in such cases, the dry powder dusted upon

[1] Read at the Annual Meeting of the Mississippi Valley Medical Association.

it, will in a short time, coagulate the mucus and put the parts in a condition for the reception of those remedies which while it was so covered protected the parts as effectually as if they were hermetically sealed.

In the summer complaint of children as well as in gastric catarrh, where the follicles of the stomach exude the same character of mucus we meet with in nasal catarrh and pharangeal troubles, as witnessed by Dr. Beaumont in the stomach of St. Martin, when suffering with gastric catarrh, where the food by coming in contact with it by the movements of the stomach, becomes coated with the mucus and the gastric juice was as effectually excluded as if coated with rubber, and it passed into the intestines as a foreign body, and by its irritation and fermentation, caused an abnormal exhalation of gasses and a watery exudation which we term diarrhœa. It is in such cases that the subnitrate in full doses, fifteen to thirty minutes before, with pepsin during or immediately after eating, will usually in acute as well as chronic cases, effect a cure, provided that you remove the cause for this, as I term it, follicular gastritis.

Combined with tannin and laudanum, as an injection, it *at once* relieves the tenesmus of dysentery; and since I have commenced its use as mentioned, with sulphate of magnesia, ipecac and opium, I have never lost a case.

As an application in the form of a powder or ointment in the treatment of old sores, ulcers and moist eczema, it will, in most cases, act charmingly. In leucorrhœa, to cleanse the parts, it has no equal.

Asclepia Tuberosa.—King speaks of it as expectorant without stimulation, diuretic and tonic, principally used in pleurisy, pneumonia, catarrh, febrile diseases, acute rheumatism and dysentery. The "National Dispensatory," 1884, says of it: "Like many other remedies, it has been alleged to possess specific powers in the cure of particular diseases, but a comparison of the reports concerning it shows that it is one of the numerous class of vegetable products which, under certain conditions, act as emetics, and even purgatives, and more commonly as sudorifics, expectorants, carminatives and anodynes. It is useful in acute rheumatism, bronchitis, pneumonia and pleurisy so far as the relation of the nervous and circulatory systems can be so. The 'pleurisy' it is credited with relieving was most probably muscular rheumatism of the walls of the chest."

In the fall of 1852, during the prevalence of a very fatal epidemic of dysentery in Montgomery county, a man recently from North Carolina, living on one of my father's farms, came to me to know where he could find some of this weed, as his wife was almost dying with the pain in her bowels caused by "bloody-flux." One cup of a hot infusion gave almost immediate relief and impressed me, a lad of 15 years, with its great value as an agent to overcome one of the most distressing symptoms in this disease, and one which the physicians at that time seemed powerless to suppress. It is, therefore, in the tormina of dysentery, so distressing to the patient, that the fluid extract in teaspoonful doses every two hours or a warm infusion of the fresh root acts like a charm; and with one trial few will dispense with its services to relieve this condition.

In the so-called "bilious" and other forms of colic, either alone or combined with an equal portion of dioscorœa villosa and a little morphine or chloroform, it acts charmingly; often one, seldom more than two doses being necessary.

The pain consequent on acute muscular rheumatism will be relieved in from six to eight hours by its administration in drachm doses every two hours.

It is, in the severe pains (call it muscular rheumatism of the chest if you please) in pneumonia that I use it most frequently, and I assure you that when administered as before mentioned, it will almost invariably give relief in from eight to twelve hours and this condition can be maintained by ten drop doses every two hours, with such other treatment as is deemed necessary to meet the indications.

In those cases of fever of a continued type, frequently met with in young children as well as adults, which resist the usual antipyretic treatment, I have found it, in small and frequently repeated doses, to act promptly and efficiently, by a marked reduction in the temperature and pulse and a moist skin resulting in the long needed quiet sleep, thus seemingly overcoming a condition which rendered the usual antipyretic list valueless. Asclepia tuberosa is certainly a sudorific, anodyne, and occasionally though an idiosyncrasy an emetic.

Hillsboro, Ill., July 6, 1886.

MEDICAL PROGRESS.

LANOLIN.—In some notes on this subject DR. WALTER G. SMITH says: It is a very interesting body from more than one point of view.

1. It is a neutral fatty salt of cholesterin (a monatomic alcohol) takes the place of glycerin, which is the radical of ordinary fats.

2. Liebreich has demonstrated the wide diffusion of this cholesterin-fat throughout the animal kingdom.

3. It is not a secretion arising from sebaceous or other glands, but is a product of retrograde metamorphosis of keratin or keratin-yielding tissues.

Liebreich suggested, but was not prepared to prove, that cholesterin-fat was present in the keratin-cells, or in the granular layer of the epidermis from which the keratin-cells are derived; but Lewin (*Berl. klin. Woch.*, 1886) has since shown that its presence can be demonstrated micro-chemically in the granular layer of the skin by Liebermann's test (acetic anhydride and sulphuric acid).

4. Lanolin commends itself, pharmaceutically, as a basis for ointments.

Shortly after reading Liebreich's paper, I obtained some lanolin from Mr. Martindale, and began to prescribe it. Within the last two and a half months, I have employed it frequently (over seventy times), and feel assured that it possesses properties which deserve attention from all practitioners. These properties are the following:

a. It is capable of absorbing and intimately blending with large amounts of water, standing thus in marked contrast to popular notions of the mutual relations of water and fats. The lanolin of commerce is a combination of neutral cholesterin-fat with about 30 per cent. of water.

b. It is neutral to test-paper, is not liable to rancidity, and is not easily saponified by alkalies.

c. It is miscible with glycerin, unlike other fats.

d. It rapidly, and in a remarkable degree, possesses the power of penetrating the epidermis.

e. Hence lanolin greatly facilitates the absorption through the skin of drugs mixed with it. So marked in this, that, with poisonous drugs, such as the toxic alkaloids, less (about half) than the usual proportion should be prescribed in ointments. The vaselins and paraffins hinder, rather than favor, the passage of drugs into the skin.

I will now briefly mention two or three cases in illustration of the uses of lanolin.

Eczema.—Captain —, a patient of Dr. Gilbert Lynch, consulted we while on a visit in Dublin. He was a corpulent man, with varicose veins in both legs, and was much troubled by an angry outbreak of eczema rubrum on the legs, on and off for two years. For this he had had the best advice in London, but without very satisfactory results. When I saw him the leg was weeping, fiery red, and intolerably itchy. The following ointment was prescribed. Lanolini 3xij; adipis benz. 3j; liq. plumbi subacet. fort. m xv; acidi carbol. 3ss; olei lavand. m v.

Speedy improvement ensued; the itching was calmed; he was able to walk about in comfort, and in about three weeks was practically cured. Ethereal solution of nitrate of silver (20 gr. to one oz.) was twice applied.

Psoriasis.—Miss G., aged 25, was sent up to me from Doneraile, County Cork. For fifteen years she had been subject to psoriasis, here and there; and in January, 1886, the disease suddenly developed into an extensive eruption over the face, chest, back and limbs; in fact, no part of the body was spared. She was covered from head to foot with small circular scaly patches.

I first prescribed a lotion of soft soap, spirit, and carbolic acid, which smarted her. A few days afterwards, this lotion was applied to one limb and ointment to the opposite limb (lanolin and lard, including pyrogallic acid 40 grains, and salicylic acid 20 grains, respectively, to the ounce). This ointment caused no irritation, and exercised a more favorable influence on the eruption. Progress, however, being rather slow, I substituted for the above ointment a lanolin and chrysarobin ointment (20 grains to one ounce). This produced speedy and marked improvement. In a week there was a striking change for the better, and in a fortnight all infiltration and scaliness had vanished, and no trace of the eruption remained, except some brown pigmentary stains.

White precipitate ointment was used on the face, and with good effect. Arsenic was given internally.

Rheumatic Exudation.—Miss F. was attacked, four years ago, with stiffness and pain in the back of the neck. This gradually became worse, and for some months, she suffered acute pain in the neck, especially upon movement. The head drooped down on the chest, she could not sit at table with comfort, and her life was becoming miserable. On each side of the cervical spine, especially the left, there was an indurated ridge of thickening, apparently in and between the muscles, and very tender to touch. She was given iodide of potassium and chloride of calcium internally, and was directed to rub in gently, but thoroughly, an ointment of lanolin and lard, containing 15 grains of iodide of potassium, 20 grains of iodoform, and three grains of hydrochlorate of morphine to the ounce. Improvement was soon apparent, and steadily continued; and, in about three weeks, she could elevate and rotate the head freely, and with little pain, and the hard infiltration at the nape had greatly diminished. The degree of pliancy conferred on the skin was remarkable, and the effect of the ointment in alleviating the local discomfort was unquestionable. Hitherto, I had found little reason for faith in the efficacy of iodide of potassium applied externally.

I have also used lanolin in acne, and in some other affections; and, speaking generally, can confirm the statement of Professor Liebreich and Dr. Lassar (based on over 400 cases), that it does not cause irritation of the skin. It is true that some cases of eczema were none the better, perhaps even aggravated, after the use of a lanolin-ointment; but similar experience is not uncommon with divers modes of treatment in obstinate cases of this fickle disease, and lanolin is no cutaneous panacea. In ringworm of the head, I have not had sufficient time to judge fairly of its effects.

With chapped hands, its effects are extremely satisfactory, and several bad cases occurring among my friends during the recent severe weather were cured by a single inunction of lanolin. For this purpose, perhaps, simple lanolin is the best to use, as it is rapidly incorporated into the skin. For general use, its stickiness should be counteracted by admixture with one-eighth or one-fourth of another fat (lard, castor-oil, etc.). A few minims of oil of lavender, or oil of eucalyptus, will communicate an agreeable odor to the ointment.—*British Medical Journal*, July 12, 1886.

Continuous Rectal Alimentation.—Dr. Duncan J. McKenzie says that the labors of Sir William Roberts, of Manchester, and others, in the field of artificial alimentation, have undoubtedly made the prospect of supporting life by rectal feeding more bright. There is, however, this difficulty in intermittent administration, that an enema, however small, is apt to cause a desire for defæcation.

It has occurred to me that we may imitate the process of nature more closely by the gradual passage of a fluid from an artificial cavity, in which its digestion takes place, into the rectum for absorption. In this way, supply keeps pace with absorption, and the bowel is not loaded.

The way in which I proceed is as follows: A piece of celluloid catheter (No. 5) is passed into the anus for about two inches; if passed too far, there is a risk of its being closed by the folds of gut. When

once introduced, the sphincter closes upon it, and its presence is hardly felt by the patient; and the celluloid, rigid when introduced, becomes rather softer from the heat of the body. Previously to introduction, this piece of catheter is passed through a thick piece of India-rubber, perforated so as to grasp the catheter tightly. To the four corners of the India-rubber are attached tapes, which are tied, two in front and two behind, to a band round the loins. This India-rubber is passed close up to the anus, and the tapes are tied as tight as convenient. Over the outer end of the catheter is passed one end of a piece of fine India-rubber tubing, such as is used for babies' feeding-bottles. The piece of tubing should be about two yards long, and its other end slipped over a metal tube let in close to the bottom of a moderately tall narrow vessel, made of tin or other material, and capable of holding a pint of fluid. To increase steadiness, the bottom is leaded on the outside. The only other apparatus required, are a milk-strainer to fit the mouth of the vessel, a table about the same height as the bed on which the patient lies, a few small boxes, or some suitable support by which the elevation can be varied, and an ordinary tea-cosy.

A pint of milk is warmed to a temperature suitable for pancreatic digestion; a little bicarbonate of soda, and a proper quantity of some preparation of pancreas, two teaspoonfuls in the case of Mr. Benger's liquor pancreaticus, are added, and it is allowed to stand in a moderately warm place for half an hour. It is then passed through the strainer into the vessel mentioned above. I find that after standing half an hour, the milk leaves little or no curd upon the strainer, and when strained, readily passes through the tubes. If the curding of the milk, by the pancreatic extract, give trouble, it may be prevented by previously adding one-fourth of its bulk of water to the milk (Roberts).

The milk, having been put into the vessel, which acts as the artificial stomach, it is raised from 2 to 2½ feet above the level of the patient's bed, the height being altered according to the rapidity with which the milk runs through the tube. The vessel is then covered with the cosy to keep it warm, and if necessary, a heated plate may be put under it at intervals. The pint of milk should run into the rectum in about three hours, which time fairly corresponds to the average digestion-period of pancreatised milk. If a desire for defæcation be felt, the flow should be made slower, or the apparatus entirely removed for a time.

When the milk has all run out, the apparatus is removed, some clean water passed through the tubes, and the patient allowed to rest for a time before re-introduction.

In this way, a patient of mine, suffering from cancer of the stomach, in whom the colon was obstructed at the junction of the transverse with the descending portions, received an average of three pints of milk per day for a month, with an average daily evacuation of about a pint, consisting chiefly of curd; his nutrition was fairly kept up until vomiting of blood, mucus, and fæcal matter became excessive; and, after death, the whole descending colon was found well nourished and containing condensed milk. His evacuations generally took place from two to eight or nine hours after milk had been administered, care being taken not to give any when the rectum felt irritable.—*British Medical Journal*, June 19, 1886.

CIRCUMCISION UNDER COCAINE.—Various experiments have been made with solutions of the hydrochlorate of cocaine with the object of producing such local anæsthesia of the prepuce as would result in a painless circumcision. The results of quite a number of such efforts, while greatly lessening the pain of circumcision, have not been entirely satisfactory. In the last two operations, however, which DR. F. N. OTIS (*N. Y. Med. Journ.*, May 8, 1886), reports having done by a new procedure, the first was entirely painless; in the second there was only slight sensitiveness in putting in the last few stitches.

The plan pursued was as follows: Retracting the prepuce, 3 or 4 drops of a 6 per cent. solution of hydrochlorate of cocaine were injected with a fine hypodermic needle into the internal layer of the prepuce about half an inch from its attachment at the base of the glans penis. This was done so superficially that, as the needle was withdrawn, a little bleb was formed nearly half an inch in legth. Waiting for half a minute, the needle was again introduced at the opposite side of the bleb, and it slid in painlessly for another half-inch in the line of the circumference of the penis. In this manner blebs were made until the cervix was completely encircled by them.

The prepuce was then drawn forward, and, by a simple procedure, another line of blebs was made to encircle the external preputial layer at the point elected for the incision. This was intended to be directly opposite the line of injection of the internal layer. The prepuce was then advanced so that the line of injection cleared the end of the glans, at which point it was compressed by a clamp, and excised without the least pain.

The clamp was then removed, the internal layer of the prepuce was slit up, turned back, trimmed with the scissors, and attached to the incised edge of the external layer by continuous suture, comprising about twenty stitches. Not the least pain was experienced in the operation except that caused by the first introduction of the needle in the internal layer, and the same in the external layer. 20 drops of the 6 per cent. solution were used in this case. In the second 25 drops of a 4 per cent. solution were injected. The chief embarrassment of the operation consisted in the fixation of the delicate tissues so as to introduce the needle with accuracy, superficially, and to a sufficient extent. An ordinary mouse-tooth forceps answers very well, but a forceps in which the needle can ride would be an advantage.—*Therapeutic Gazette*, June 15, 1886.

BACTERIA-THERAPY.—DR. FRAS. TROUP has recently satisfied himself that a sputum which has putrified for fourteen months still contains tubercle bacilli, which are capable of reproducing their kind; and therefore, the good results of spraying with *bacterium termo* must be attributable to some other cause.—*Brit. Med. Journal*, June 19, 1885.

THE
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PUBLISHED WEEKLY.

THE EDITOR OF THIS JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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MEDICINE IN 1936.

As is very well known, the late Dr. Austin Flint was to read the Address in Medicine before the British Medical Association at its annual meeting in August, 1886. After his death the manuscript of the Address was found among his papers, and it has now been printed by Appleton, under the supervision of Dr. Austin Flint, precisely as it was written by his father. It is entitled "Medicine of the Future." This, so far as is known, was the last literary work of the great master, and though he had several months in which to prepare it before it was to be delivered, in this case, as with all his other work, he made his preparations in ample time.

While there is no discussion in the Address of any new method of treating disease, or of any particular subject in medicine, many valuable suggestions may be found in it, and much that will give rise to serious thought. "To look forward, as well as backward, is both interesting and useful. If our retrospections extend over half a century, it is worth while to inquire, How will the present appear in a retrospective view at the end of the next fifty years?" It is in the spirit of this inquiry that Dr. Flint offers some thoughts on the medicine of the future. He assumes that medicine, as it is to-day, will not remain stationary; the past history of medicine shows progress, and it is only natural to conclude that it will continue to advance. The past gives an assurance of progressively increasing security from the outbreak as well as from the effects of disease; and we may conclude that the future will do much more in those directions. As with all sciences, the advances in medicine have been by means of discoveries, improvements and added facts which have marked epochs in its history. In medicine, as in other sciences, there are still many worlds to be conquered, many mines to be explored, and many virgin fields to be turned up and cultivated.

The fifty years preceding 1836 were marked by the discovery of auscultation by Laënnec, the laying of the foundation of renal pathology by Bright; and Bichat, Magendie and Bell created general anatomy and added to the knowledge of the nervous system; Poiseuille conceived the idea of a sphygmograph in 1829, though it was not until the present half century that the lever principle was applied to this instrument, which, in spite of its general neglect at present, is destined to great service in the future. It was in 1831, just five years before the beginning of this half century, that Leuchs showed the diastatic action of the saliva. Carminati and Prout (1785 and 1824) found that the gastric juice was acid, and that the gastric juice contained hydrochloric acid; and it was in the first year of this half century that Sprott and Boyd discovered the gastric glands. In the same year Schwann isolated pepsin, while two years before Eberle prepared artificial gastric juice. It was in the first year of the last half century that Purjinke and Pappenheim referred to the fat-splitting action of the pancreatic juice, and its diastatic action, its emulsifying power, and its tryptic action were soon discovered by Valentin, Eberle and Bernard. It may seem remarkable that nothing, comparatively speaking, was known of the liver until 1838. It is within this half century that the reflex system of nerves was discovered and the separate functions of the different portions of the spinal cord; the recognition of the self-limitation of certain diseases; that histology has been created by the microscope; that certain cerebral functions have been localized, and that cerebral surgery has been put on a new plane; that ovariotomy has been revived and brought to its present state of perfection; that anæsthesia has been discovered; that the clinical use of the thermometer has been revived; and that the bacterial origin of diseases has been revealed.

To what department of medicine must we look for the most brilliant results in the next fifty years? Most probably to that of physiological chemistry, which carries its investigations beyond the bounds of microscopical observation. The application of the microscope to the study of healthy and diseased tissues has given a wonderful impulse to medicine, and it is entirely probable that much more will be done as that instrument is improved in its construction, and as further progress is made in the use of staining agents. It is probable also that the use of the spectroscope will be greater. But it may be said that the probabilities and

possibilities of physiological chemistry are limitless. The work begun by Liebig has only just begun. Histology may disclose agents, but to physiological chemistry we must look for the agencies. It is in this field that we must work if we would find out how secretions, excretions, nutrition, growth and certain morbid products are brought about. The microscope has revealed the existence of micro-organisms, but physiological chemistry must tell us regarding the toxical products of these microscopic agents, and how they give rise to disease. So also in regard to the action of drugs. It is not an explanation, but a statement of a fact to say that a certain drug acts upon a particular tissue, or that it causes a particular effect. Chemistry must tell us how and why this drug acts in a certain manner. These views have been repeatedly advanced, and the supreme importance of chemistry as a corner-stone of medicine has been advocated in THE JOURNAL for some time past, and it is with no little pleasure that we now record the endorsement of the departed master.

Fifty years ago that man would have been thought an idle dreamer who had said that within the memory of some then living it would be possible to converse with a person hundreds of miles away, or that a fibroid tumor of the uterus would be melted away by the electric current, or who mentioned such words as phonograph, microphone, or cablegram. These marvelous developments of electricity, says Dr. Flint, have not added much as yet to our knowledge of the normal and abnormal actions taking place within the human body, but much is to be expected from this source in the future. "It seems to me certain that the principle of the telephone will, by and by, be applied to intra-thoracic respiratory and heart-sounds, so that they will be transmitted to the ear with more distinctness than they now are by the binaural stethoscope. The healthy and morbid sounds will then be so easily discovered as to render the physical diagnosis of pulmonary affections in all cases a very simple problem. More than this, the clinical teacher may be able to demonstrate auscultatory signs to a class of medical students comfortably seated in the lecture room or hospital amphitheatre." The same may be said in regard to the physical diagnosis of heart sounds. "I will go further, and say that intrathoracic sounds may be transmitted from the patient to the physician, no matter how distant one may be from the other. Again, and still further, the sounds from the chest of a patient may be phonographically, transported never so far, and made available after an indefinite period." "Who knows," said Robert Hook, in 1705, "but that one may discover the works performed in the several offices and shops of a man's body by the sounds they make, and thereby discover what instrument or engine is out of order!" Surely Hook might claim, were he now living, that his prophecy of one hundred and eighty-one years ago had been fulfilled by Laënnec. But who will say that his prophecy has been completely fulfilled? Who will attempt to predict the limits of auscultation when the foot-fall of the fly has been heard through the microphone?

Again, the sum of our knowledge of the natural history of disease has been vastly increased in the last fifty years. Half a century ago the sharp line between self-limited and other diseases had not been drawn, but we can scarcely estimate the influence of our present knowledge of the natural history of diseases upon therapeutics. There is still much to be done in this great field. "With the now prevailing views, it seems a surprising statement that phthisis pulmonalis may be self-limited and end in recovery purely from an intrinsic tendency; yet, I venture the assertion that the correctness of the statement has been substantiated, and that before many years elapse it will be generally acknowledged to be a clinical fact. How important is this fact in judging of the agency of medicinal, climatic, and hygienic measures in the treatment of this disease!"

Dr. Flint predicts that venesection, "the lost art in surgery," will be revived. It may be questioned, however, if bloodletting be really a lost art. It is not so frequently resorted to as formerly, but we know more of its dangers than did medical men fifty and one hundred years ago. The giving of calomel in ten grain doses, and more, may be said to be a lost art in the same way as indiscriminate venesection, or as the use of small doses of quinine in malarial fever. It is a mistake to suppose that venesection has been abandoned; it is a much more serious mistake to resort to it when not indicated. We should take advantage of its prompt and efficient effect in certain conditions of disease; and we must "observe a proper conservatism as regards its potency for harm as well as good." It is quite certain that its dangers and evils were formerly overlooked, and that they are now somewhat exaggerated. It should be remembered that "a remedial agent can have but little value if it be not capable of acting injuriously as well as usefully. In the ability to employ potential agencies so judiciously as to secure their good and avoid their evil effects, lies the secret of true success in the practice of medicine."

The bacterial origin of disease is intimately connected with preventive medicine. We may be said

to be just awakening to the dawn of a great revolution in medicine, and in this revolution bacteriology and preventive medicine will play a most important part. Our lack of information regarding the etiology of diseases is deplorable. This field will yield a rich harvest to patient workers, and as it is tilled preventive medicine will gradually claim its proper recognition and importance. The time has past when one may say that a disease has a spontaneous origin. One point which Dr. Flint makes is, assuming the truth of the parasitic origin of any one of the infectious diseases, that it is a logical inference that this truth is applicable to the other diseases of that class; and furthermore, the discovery of a specific microorganism as the cause of a disease, places it in the list of infectious diseases, although it may not have been considered as belonging to the class. And if this reasoning be correct it is only a question of time when specific organisms will be discovered for all the infectious diseases. And what will be the influence of these discoveries upon medicine in the future? "Having acquired knowledge of the natural history of the different species of parasitic organisms, a great practical object is to find means for their destruction within the body." We can scarcely doubt that this will be done. Though the parasite of malarial fever has not yet been certainly described, the parasiticides of the disease were discovered long ago. It is possible that parasiticides in cases of other infectious diseases may be discovered before the parasite, or *vice versâ*. There may be very many difficulties in the way, but as each one is overcome the others become easier. But we have thus indicated only a portion of this vast field: when the parasite is discovered we must find some means for preventing its growth and terminating its existence outside the body, and for effectually excluding it from the body; and it is here that preventive medicine claims its place. It is very probable that the work now being done in the way of inoculating with attenuated virus will at some time put us in the way of forestalling other diseases than small-pox.

And besides all this there are glands within the human body the functions and uses of which are but little known, and whose pathology is an unexplored field. The spleen, the gastric glands, the glands of Lieberkühn, the lymphatic glands, the thyroid gland and the supra-renal capsules, and even the liver, are vast and fruitful fields for future clinical, physiological and pathological research.

Space is wanting to follow the address in the remarks on the future of medical literature, on the future of the profession, on future medical teaching, and on specialism. The only regret on laying the little volume aside is that its great author has finished his work.

THE BEARING OF THE PRESENCE OF ALBUMIN OR SUGAR IN URINE ON LIFE INSURANCE.

It has come to be a well-known fact that albumin is often detected as a temporary constituent of urine in persons who present no other evidence of ill health; and the same may be said in regard to the presence of sugar. To medical examiners and medical supervisors for life insurance companies such cases give much embarrassment. And to arrive at conclusions just both to the applicant and the insurance company it is necessary not only to repeat the chemical tests on urine passed at different times in the day and at intervals of several days, but to add examinations with the microscope. The following suggestions taken from a letter written by one of the most experienced Medical Directors of an important life insurance company in Philadelphia, are worthy of note:

"*Dear Doctor*:—In reply to your favor in regard to our action in cases where albumin is found in the urine, I may state that the following is our custom: Where the applicant is (1) a young person of good habits, (2) good family record and (3) physique, and the amount of (4) albumin is small and (5) specific gravity normal, we usually request the examiner to make several examinations of the urine at such times as he sees fit, to find whether the presence of albumin was accidental or not. In such cases, if it is proved that it is not a constant condition and due to renal disease, we will probably issue a policy for a small amount. If a large amount of insurance is requested we would require a microscopical examination of the urine under such circumstances.

"If the applicant is (1) past middle age, at the time when degenerative process begins, (2) has been a free liver or accustomed to luxurious habits or has undergone mental strain, (3) or has been overworked and closely confined to business, (4) with irregular hours, etc., the presence of the smallest amount of albumin in the urine we consider an absolute impediment to life insurance.

Possibly science may teach that such persons, with great care, will live as long as any one, and therefore the *family physician* can give a favorable prognosis, but an insurance company which is obliged to take *only safe risks* cannot place money on such an individual.

"The same action is taken when sugar is found."

DEATH OF DR. R. C. HAMILL.

Died at his residence in Chicago, on July 21, 1886, Dr. R. C. Hamill, one of the oldest and most highly respected practitioners of medicine in the city. Although 78 years of age, he had continued to attend to his ordinary professional duties more or less, until near his death.

For many years he had been an active member of the Chicago Medical Society, the Illinois State Medical Society, and the American Medical Association, to the *Transactions* of all of which he had made valuable contributions. He was a faithful, generous, and skilful general practitioner, commanding the full confidence of a wide circle of patrons. As a citizen, he was universally respected, for he was a man of perfect integrity whose highest enjoyment was derived from relieving human suffering and in promoting the best interests of the whole community.

AN EXCELLENT EXAMPLE.

We are informed by the Treasurer of the Ninth International Medical Congress that he has received, for the Congress, the sum of $500, donated by the Michigan State Medical Society at its recent annual meeting. The Executive Committee of the Congress must necessarily expend a large sum of money in printing and distributing circulars, and in perfecting all the arrangements preliminary to the actual assembling of the Congress. The liberal action of the Michigan State Society is timely and appropriate. It is very desirable that the good example presented should be speedily followed by the State Medical Societies of other States, and also by the leading societies in our most populous cities and counties.

COLDWATER SANITARY CONVENTION.—The Sanitary Convention previously called for Sept. 23 and 24 in Coldwater, Michigan, will be held on Thursday and Friday, Sept. 9 and 10, 1886, instead of the first named dates.

SOCIETY PROCEEDINGS.

CHICAGO GYNÆCOLOGICAL SOCIETY.

Forty-Sixth Regular Meeting, Friday Evening, April 23, 1886.

THE PRESIDENT, DANIEL T. NELSON, M.D., IN THE CHAIR.

W. W. JAGGARD, M.D., EDITOR.

(*Concluded from page 107.*)

DR. JOHN BARTLETT made remarks upon, (with the exhibition of specimens of)

(1)—A CASE OF DERMOID CYST COMPLICATING LABOR. (2)—A CASE OF PLACENTA PRÆVIA IN WHICH THE PLACENTA WAS EXPANDED OVER THE ENTIRE OVUM.

Dr. Bartlett said: "I have recently seen two interesting cases of labor, and I wish to present a specimen obtained at each of these, to the Society. The first was a case in which I was called to assist Dr. John S. Clark. The patient, a primipara, about 30 years old, had been in labor under the care of a midwife about twenty-four hours. The head was making no progress, and exhaustion was approaching; about one ounce of fluid extract of ergot had been given. Dr. Clark found the head lying with the antero-posterior diameter corresponding with the conjugate, the parietal eminences had passed the brim. He applied an old style, high curve, Bedford's forceps, but found his efforts unavailing in causing the head to advance. Dr. Bartlett then attached his direct traction handle, and descent of the head was effected. After delivery of the head there was difficulty in delivering the shoulders. When an effort at extrusion was made, there appeared in the perineal region, between the vulva and tuberosity of the ischium, a jutting outward of the tissues in the form of a tumor. It seemed as if an obstructing body was wedged in front of the shoulders. Counter pressure was made upon the protrusion, and the delivery was completed. Following the child, came a tumor of the shape and size of a learge pear, presenting at the small extremity a pedicle. It was a thin dermoid cyst containing a mass of fatty substance, embedding numberless long intertwining hairs. The tumor could not be felt during labor, and a careful inspection showed that it had not been attached to the child. It was probably attached to the uterine surface, resting between the head and the shoulders. Possibly it was the cause of the dystocia in diverting the head from an oblique diameter of the brim. Depression of the vital powers with high fever set in soon after delivery, resulting in death within four days. Dr. Clark's examinations, *post partum*, detected no injuries beyond laceration of the perineum. The child was still-born.

The second case was one of placenta prævia. Mrs. N. had several children, and within eighteen months past, two miscarriages. In January last, when she was nearly four month advanced in pregnancy, I was called because of serious hæmorrhage. The uterus presented to the touch nothing peculiar, there was none of that extra development of the lower segment of the organ which is supposed by some to indicate placenta prævia. The tampon was applied, opiates given, rest enjoined, and the bleeding ceased. At four and one-half months the hæmorrhage recurred. Under treatment, the bleeding was in some measure controlled. For the two following months it was continuous, generally moderate, occasionally quite severe, at all times, as she declared, four-fold greater than the flow of menstruation. I then deemed it best at six and one-half months to induce labor, but Dr. John S. Clark, in consideration of the probable non-viability of the child, advised further delay. The flow, however, was so great that the tampon was ap-

plied, and in forty-eight hours thereafter labor began. Upon removing the plug, the os was found thin, softened, and three-quarters of an inch in diameter. At about the fourth hour of labor, the os rather suddenly enlarged to a diameter of one and a half inches, and the hæmorrhage became profuse. The half hand was introduced into the vagina, and the placenta stripped off over an area, the radius of which was three-fourths the length of the middle finger. With the bullet forceps, used by me with advantage in such cases, the membranes were torn, and the opening so made was freely enlarged by the finger. Hæmorrhage immediately ceased, and labor became more active, so that in the course of an hour the child was delivered, breech first. Several inspirations were made by the fœtus, a fact of interest, in view of the peculiarities of the placenta, which I here present. In order to display the specimen to better advantage, I have filled the cavity of the membranes with horse hair and sewed up the aperture. It will be observed that the main body of the placenta, the normal placental mass, is not prævia, but attached near the fundus, and that the rare anomaly is here presented of a continuous placental tissue spreading over the entire ovum. Observe that the extra, adventitious portion, continuous with the normal placental edges, and everywhere enveloping the membranes, is comparatively thin; in the present state not thicker than one-eighth or three-sixteenths of an inch.

Dr. W. H. Byford spoke of a specimen he exhibited some time ago at the Chicago Medical Society—a dermoid cyst which was expelled from the vagina. It was sent to him by Dr. White of Bloomington, who said the tumor was situated in the anterior wall of the vagina, and as the child was delivered the pressure of its head pushed the tumor out before it. He thought that in the case under discussion the tumor may have been developed in the vaginal walls. The localities of these growths are not uniform and we find dermoid cysts situated in the vaginal walls. Bartlett said in answer to a question from Dr. Byford that the existence of the cyst was not discovered before but during labor; that it was beyond the head and may have been an ovarian tumor; it was not outside the vagina, but between the head and shoulders. Dr. Byford thought it almost certainly a dermoid tumor of the vagina. He thought that these cases are almost always found in old or multiparous patients.

With reference to Dr. Bartlett's second case, he asked if the hæmorrhage ceased before rupturing the membranes, or if the whole operation was done at once. Barnes claims that if the membranes are separated over the cervical zone the hæmorrhage will stop; that there will be sufficient retraction of the cervical zone to close up the mouths of the vessels. He thought it a point of interest to know whether or not that would have stopped the hæmorrhage, and whether it would not have been sufficient. He thought in that case one is not called upon to leave the membranes intact.

Dr. DeLaskie Miller said that the effect of endometritis is usually to increase the area of the development of the placenta, and he had not infrequently seen cases of placenta of the usual size, on which projections appeared in different parts in the interior of the uterus, partially connected or entirely disconnected. He asked whether a case of endometris might not allow the villi of the chorion to form these *placentæ succenturiatæ*. He was inclined to think that condition would encourage it. Another fact in the history of the case that would perhaps justify this theory was the several miscarriages the patient had experienced before this pregnancy.

Dr. T. D. Fitch said that in thirty-five years of practice, in which he had probably attended more than a thousand cases, he had seen but one case in which he suspected placenta prævia. He was sometimes ashamed to make the statement for fear his experience had been from lack of close observation, or inability to recognize a case, but he had seen only one, and did not know that that was really a case of placenta prævia. He did not detect it by manual examination; the symptoms were altogether subjective. It was a seven months' labor and the child lived. There was a good deal of hæmorrhage. He had no difficulty with the labor, except from the hæmorrhage, and that did not prove serious.

The President asked if any one could suggest the origin of the tumor? Was it a twin or a dermoid thrown off from the fœtus, or was it from the mother. He asked Dr. Bartlett if it was a part of the child, and was answered after careful examination no place was found where it might have been attached. It was perfectly loose in the vagina; probably the pedicle had been ruptured.

Dr. Edward Warren Sawyer thought with reference to Dr. Bartlett's second case the case had several interesting features, and the subject itself is full of interest. He referred to a conversation earlier in the evening in which Dr. Byford had said that he had been in practice many years before seeing a case of placenta prævia, and the first case he ever saw was the first of three in one night. It had happened to Dr. Sawyer to see a number of cases of placenta prævia. He had had two fatal cases, and had learned something of early diagnosis, which had been profitable to him since, and he thought of it in the obscurity of the diagnosis in Dr. Bartlett's case. He said that in one of his cases, after reading of the ease with which one could auscultate the lower segment of the uterus under these circumstances, he prolonged his stethoscope with a long flexible tube, put a cup on the end of it, and had no trouble in introducing it into the woman's vagina. He had repeatedly detected portions of the cervical attachment of the placenta by this mode of auscultation. The remark made by Dr. Byford had received some confirmation in his experience, viz.: that many cases of placenta prævia aborted early and that he believed this to be a frequent cause of early abortion. Spiegelberg says that placenta prævia is of frequent occurrence. An interesting fact in connection with Dr. Bartlett's case was the alarming amount of hæmorrhage which took place from the placental attachment away from the main part of the placenta; or in other words, there were sinuses in the cervical zone of this uterus which were covered only by the velamentous

portion of the uterus—sinuses large enough to bleed, and exsanguinate the woman. Dr. Sawyer spoke of a case to which a former pupil of his was called. A midwife summoned him at midnight to see a woman who was bleeding to death. As he entered the room she handed the doctor a cord (the child was delivered), and the placental end of the cord was a disc about as large as a butter dish. That fleshy mass had been pulled directly from the placenta and the woman was actually bleeding to death. This little mass was very thin, and he was at a loss to understand to what part of the placenta it could have been attached. He delivered the woman completely and she was saved. He found a hole through the placenta corresponding to the disc which had been pulled out; it was in the thin portion of the placenta, and the bleeding was somewhat alarming. Referring to the question that Dr. W. H. Byford asked concerning the mode of treatment advocated by Barnes, Dr. Sawyer said he was full of the idea, and the feasibility of it was accepted by him in his first reading of Barnes's work, and he tried to adopt it in practice, but he hoped no one would ever get himself into such a dilemma, as he was sure he lost his patient by that course. Theoretically you may detach enough of the placenta to save the woman from hæmorrhage. The so-called cervical zone is not to be measured by the finger; he did not think it had any definite boundaries; it might sometimes extend halfway to the fundus on one side of the uterus, and he thought the more we detach the more dangerous it may become. He felt quite confident that the poor woman who was the victim of Barnes's theory would not be dead to-day if he had adopted a more rational treatment.

There was one point in connection with the causation of placenta prævia that excited a great deal of interest in his mind. He had seen two cases strangely confirmatory of the movement of the ovum in the early days of its sojourn in the uterus. One case was also seen by the President, but he had never spoken to him of the theory of which the examination of the placenta had been the origin. Dr. Sawyer had written to several prominent obstetricians of this country, asking if they knew anything in the literature which would answer the question: Can the ovum once attached to the decidua of the uterus become detached and again attach itself to the lower part of the uterus and go on through pregnancy? In other words, can the ovum detach itself, drop from the top of the uterus to the bottom, re-attach itself in the cervical region? Many learned men replied that they had never heard of such a possibility. But Dr. Harris, of Philadelphia, hit upon this happy expression: "Rotation of the ovum." He had seen two cases in which he thought the ovum rotated in the earliest days of pregnancy; not a complete rotation, but an almost complete detachment and rolling, or rotating, downward and there attaching itself. The second case was in the practice of Dr. Doering. The subsequent examination of the placenta showed a case of partial placenta prævia. The umbilical cord springs from the margin of the placenta in both instances; and his theory was that in the first case, which was that of a young primipara, the placenta was fixed normally at the fundus and the cord sprang from the middle; there was a history of a sudden jar of the body when she was about three weeks pregnant; she jumped from a high wagon aud immediately flowed a little, and when she came to be delivered she had a complete placenta prævia. The examination of the placenta showed that the cord was attached to one margin, showing that it had rolled down and formed a new attachment for the umbilical cord. When the placenta was at the fundus and the cord at the middle, by its rolling downward it placed the cord at the margin. He thought one of the most important causes of placenta prævia is this rotation of the ovum very early in pregnancy; a rotation may be caused by a sudden jar, and he thought the confirnation of it is in the unusual attachment of the cord.

DR. J. H. ETHERIDGE had seen one case of a woman with placenta prævia with twins. At about the fourth month the woman fell and struck the lower part of the abdomen against a washtub, she had a little hæmorrhage, and from that time till term she was always tender at that spot. Free hæmorrhage took place and he was called to see her. The woman was delivered of a mature fœtus, and of a child that was evidently arrested in development about the fourth month. The theory was that there was a partial detachment of the second placenta, the other child went on and developed regularly. The mother died in a few hours after delivery.

THE PRESIDENT wished to say a word about the theory of causation advanced by the Secretary, the idea of displacement, or rotation of the ovum after implantation. It seemed to him that there was a more important cause, and in all the cases he had personally investigated, about four, there had apparently been good reason for the theory that disease of the uterine mucous membrane, inflammatory and with an unusual pathological amount of secretion over its surface, is the cause of the implantation at the cervix instead of at the normal place, in the vicinity of the entrance to the Fallopian tube. From the quantity of the mucus the ovum glides down to the cervix and remains there, because the tissues are more healthy, perhaps. In two cases of placenta prævia that he had knowledge of pregnancy occurred some time after treatment, with a previous history of sterility, or of miscarriages, and possibly the mucous membrane nearest the cervix was in a more healthy condition than that near the Fallopian tubes, or possibly there was constriction of the internal os. It seemed to him there was good reason for the belief that if the mucous membrane at the fundus is not in a good condition to nourish the ovum and to hold it, it falls to the internal os and is there held, and there is a possible placenta prævia at full term. He wished to know if in Dr. Etheridge's case there was any previous knowledge of uterine disease? Dr. Etheridge replied that there was none; the woman was a healthy Scotch woman.

DR. ETHERIDGE asked whether placenta prævia is a common thing in animals.

DR. SAWYER replied that he had seen a mare throw off her placenta before she threw her colt, and in

fact she died without throwing the colt. He said further that he believed cervical pregnancy is generally recognized as being secondary to another thrown off from the fundus; that being the case, why not a secondary attachment or lodgment of the ovum at the lower segment of the uterus, as well as in the cervix itself. He believed the majority of authorities is against the idea of cervical pregnancy in the abstract, but he thought Dr. Bartlett considered it possible to conceive in the cervix.

THE PRESIDENT said there might be disease of the uterus there, and then comes the question whether this is the sole cause, or one of the many causes The question had been asked whether placenta prævia is of frequent occurrence among prostitutes, women who might be supposed to be anxious not to become pregnant, and he thought it had been answered in the negative.

DR. SAWYER asked if the President's theory was correct and his observations had been confirmatory of it, how is it that Spiegelberg can say that many primiparæ, young, healthy women miscarry on account of placenta prævia.

DR. SAWYER thought that pregnancy itself was infrequent among prostitutes.

DR. H. P. NEWMAN mentioned a rare case which had lately come to his notice, namely, a complete central implantation of the placenta, in which no hæmorrhage had occurred throughout the entire pregnancy until the very last days of gestation.

Ten days prior to delivery at full term there was the first appearance of bleeding,—easily checked by assuming the recumbent posture; and it was not until five days later that the hæmorrhage became at all abundant.

Delivery took place on Tuesday, April 13th.

On the preceding Friday Dr. R. N. Hall was called, and diagnosticated placenta prævia, using the tampon. I first saw the case in consultation with Dr. Hall on Tuesday morning. The repeated tamponing and use of the colpeurynter the night before, had had the effect of gradually bringing on labor pains, and softening and dilating the cervix to the diameter of nearly two inches.

A digital examination revealed nothing but a thick placental surface upon all sides, covering, as we afterward found, the entire lower segment of the uterus. By bimanual palpation we made out a shoulder presentation (left dorso-anterior), and decided on immediate delivery.

Every preparation being made to control hæmorrhage, the placenta was carefully separated from its uterine attachments upon the left side, and the right hand carried upward between the membranes and uterine walls.

When the feet were reached the sac was ruptured, podalic version performed, and the child extracted. Meanwhile Dr. Hall had followed up the evacuation of the uterus by firm bimanual pressure upon the uterus through the abdominal walls. The placenta, which was a large one, and pretty evenly distributed upon all sides, was separated from its remaining attachments, and removed as speedily as possible. The entire procedure was accomplished in less than five minutes, and the hæmorrhage was not excessive considering the gravity of the situation.

The child was saved, and notwithstanding the amount of blood lost by the mother at and previous to delivery, she convalesced rapidly, and is now up and about. She is a strong, healthy woman of middle age, has borne seven children, and has had three miscarriages.

With the exception of rapid childbearing, a laceration of cervix, and one faulty presentation necessitating version, her former history has no particular interest.

DR. BARTLETT said, in closing the discussion, that in a paper written years ago he had expressed an opinion that placenta prævia was one of the simplest of the *errores loci* of the ovum, that the true site of the placenta, when prævia, was the cavity of the cervix, that is, below the os internum, or the so-called ring of Bandl. Dr. Bartlett took occasion to emphasize his conviction of the truth of the position taken by him in the paper referred to. In the case now before the society corroboration of his idea might be found. An ovum resting in the comparatively large cavity of the uterus would take root on the surface to which it chanced to be more nearly apposed. An ovum arrested in the much more circumscribed cavity of the neck might secure a more general, and in some rare instances, a complete attachment to surrounding uterine tissues.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, Thursday, May 6, 1886.

THE PRESIDENT, B. F. BAER, M.D., IN THE CHAIR.

(Continued from page 104.)

DR. M. O'HARA reported a case of

EXTRA-UTERINE PREGNANCY WITH RUPTURE OB THE FALLOPIAN TUBE; LAPAROTOMY ON THE THIRTY-THIRD DAY; RECOVERY.

On September 25, 1885, Dr. O'Hara was called to see R. H., who had been in good health until seized, two hours previously, with severe rectal tenesmus, agonizing pains in the pelvis, pains from both flanks, and extending down the right leg and arm. From the tenesmus she thought she would have a stool, and rushed to the water-closet, but no relief following, rushed to her room and fainted; she was carried to bed, rectal injections were given by those present, but no movement followed, and opiates were given for the relief of the pain. When I saw her she was in collapse, almost pulseless, respiration shallow, extremities cold. The whole surface was bedewed with a cold death-sweat. She could not lie on her left side or back, but reclined doubled upon her right side, and would jump up occasionally with exclamations of agony. The history hastily gathered gave the following data: R. H. was 30 years of age, the mother of three healthy children, the youngest one year old; she was still nursing it. She had never been sick, and had menstruated regularly. One men-

strual period had been missed about a week before the accident, and she considered herself pregnant.

The diagnosis was internal hæmorrhage, due to rupture of the Fallopian tube at the fifth week of pregnancy. Opiates and stimulants were used. The next day Dr. Parish was called in consultation, and concurred in the diagnosis. There was still some shock, pulsation 130, feeble and irregular; respiration feeble; temperature normal; great pallor, evidently due to the loss of blood; the abdomen was moderately distended with occasional cramp-like pains; moderate tenderness, but no symptoms of peritonitis. The patient showed signs of reaction and laparotomy, though discussed, was deferred. Five days after the rupture the patient was able to bear a close examination. The abdomen was greatly distended; there was no tenderness on moderate pressure; resonance was general except in right flank, where there was moderate dulness; there was no dulness in the left iliac and lumbar region except very far back, near the kidney. There was an apparent bulging of the right flank. The vaginal surface was generally œdematous, the anterior wall of the vagina was thicker at the cervix and to the left. The cervix is moderately soft and patulous; no bulging of the posterior pouch. It was not deemed advisable to use the sound. The urine was almost black in color. Pulse 104, temperature 99°, respiration normal. Two days later a marked jaundice appeared, although occasional vomiting and purging of bile occurred. A few days later a swelling was noticed on both sides and in front of the cervix, and a bloody painless discharge, containing decidua-like fragments, escaped from the uterus, and the dulness in the right iliac region disappeared. Urination became painful and difficult. The patient felt so much better that she desired to get up.

Three weeks after the first attack a terrible flooding occurred; it lasted for an hour, and slight hæmorrhage continued afterwards. There was decidua in this discharge. At the same time the supra-pubic tenderness extended towards the right and slightly increased on the left side, extending upward as high as the umbilicus. Chills and a rise of temperature to 101°, vomiting, constant sharp cutting pains, and emaciation, with signs of softening along the crest of the ileum, and general appearances of blood-poisoning occurred, and surgical interference was strongly urged as the only means of averting death. On the thirty-third day Dr. Parish operated, and he prepared the following report of the operation:

There were present Drs. O'Hara, R. P. Harris, De F. Willard, and McElroy. I proposed to cut down directly on the tumor by an incision immediately above the outer portion of Poupart's ligament, believing that the tumor consisted of blood coagula and pus located external to the peritoneum, and that the anterior parietal peritoneum had been dissected up to such an extent that the mass could be excised and emptied without opening into the peritoneal cavity, and without incurring the possibility of objectionable fluids reaching the serous surface. I also believed that the peritoneal cavity was clean, and that there had been no general peritonitis.

The gentlemen present advocated a median incision; for purposes of exploration and in deference to their views, I first cut through the linea alba just below the umbilicus, making an incision long enough to admit two fingers. The peritoneal cavity was found empty and the peritoneum quite normal, though somewhat congested. The exploring finger showed that the mass was external to the peritoneum, and extended upward from the left half of the pelvis to a level with the umbilicus. The broad ligament had become obliterated by separation of its layers. It was not thought advisable to explore with the finger with the view of determining the condition of uterus, ovaries and tubes. The peritoneal covering of the abnormal accumulation was evidently thin and tense, so that a careful exploration as to the condition of the uterine appendages would have endangered its rupture and the probable development of general peritonitis. It would have been an easy matter to have stitched the parietal wall of the tumor to the walls of the median incision and to have then, by incision, emptied the mass of its contents. But such a procedure would have been attended with risk of leakage of the offensive fluid into the peritoneal cavity. To avoid this risk, I now made another incision along the line of original election, *i. e.*, above the outer border of Poupart's ligament, and readily reached the mass cavity without wounding the peritoneum. This incision was made long enough to admit two fingers. About one quart of blood coagula, fluid blood and pus, escaped. The fibrinous masses were removed and all attached portions were scraped off with the fingers. The curette was avoided, chiefly because of the thin upper wall. The cavity was washed out with antiseptic fluid.

The median incision was closed with sutures, and a drainage tube introduced into the mass cavity. An incision could not have been safely made through the vagina, as the intervening tissue was too thick, and its vascularity too great. The incision made admitted of more thorough emptying of the cavity.

The patient suffered no shock from the operation. There was a slight sanguinolent discharge, containing small clots, from the drainage-tube, amounting to about two ounces in twenty-four hours. Nourishment was taken fairly. The cavity left at the time of the operation held ℥xxxii. In two days it had contracted to ℥i, but the discharge was purulent and offensive. A bloody discharge from the uterus had continued since the operation, but was free from odor, and diminishing. The last sutures were removed five days after the operation, and ten days later the drainage-tube was replaced by a tent. Two weeks after the operation the uterine discharge had ceased, but free bleeding from the wound occurred; there had been no exertion, sneezing or coughing, to cause this hæmorrhage, which occurred about eight weeks after the last menstruation; but a week later, a bloody discharge occurred from the uterus and wound. The temperature rose to 103°. There was no pain on pressure, but there was a suspicious hard spot in the left iliac region. Twenty-four days after the operation the patient was permitted to sit up, and while cheerfully singing felt blood streaming

down her legs from the wound; clots passed also from the uterus and rectum. She felt the rectal tenesmus and pains in right lower extremity similar to those felt at the first seizure. Much blood was lost. A similar bleeding occurred three days later, and as life was endangered it was thought necessary to give ether and explore the cavity. It was found that the tissues had been dissected up by accumulated blood and pus until the cavity extended down the side and front of the uterus and communicated with the rectum at the upper end. The cavity was thoroughly scraped with a curette and was then packed with alum sponges after disinfection with Platt's chlorides. The patient reacted well. When the wound was injected nothing came from the rectum, but an injection into the rectum came out of the wound, and there was a fæcal odor about the wound. Next day the sponges were removed and muslin tampons wet with phenol sodique were introduced. The packing was changed twice each day. Discharges of offensive fæcal matter and a small gall stone escaped from the wound.

On February 15, nearly four months after the operation, the patient is noted as doing uniformly well; the wound is closing; the exudation about the uterus and vagina is disappearing, and the odor and elimination of gas while dressing the wound had disappeared.

May 1. Patient has gained greatly in flesh and presents the appearance of perfect health. A very small short sinus alone remains. The communication with the bowel has closed entirely. Menstruation occurs normally and there is no bleeding at any time from the wound.

Dr. Parish made a few remarks upon the history of this case and the difficulties surrounding a diagnosis. The patient was 30 years of age and perfectly healthy. She missed one menstrual period and a week later, possibly in the fifth week of pregnancy, there were signs of internal hæmorrhage with shock. Dr. O'Hara at this time made his diagnosis, doubtless correct, of tubal pregnancy with rupture of the cyst. The patient commenced, after a few hours, to rally. Dr. Parish was called in consultation the next day; he suggested an operation to remove the cause of the trouble but did not urge it as the symptoms had ameliorated. The patient continued to improve for several days. Afterwards a tumor appeared. The first hæmorrhage being into the folds of the broad ligament and limited did not show, but as repeated hæmorrhages occurred the tumor increased, pus formed, the embryo softened, septicemia without peritonitis was developed and then the operation was performed and was then imperatively demanded. Three months after the original shock a sudden and nearly fatal hæmorrhage occurred simultaneously from the wound, vagina and rectum. Evidently there was a tubal communication between the uterus and the wound and a large rectal fistula had formed. This fistula healed without any separate operation.

There was evidently at the beginning, a pelvic hæmatocele without peritonitis, due to a ruptured Fallopian tube. The early operation was proposed but did not meet with approval. It was evident the hæmorrhage was extra peritoneal as it would most probably have been fatal if it had burst into the peritoneal cavity. He deprecated the expectant plan of treatment of cases of rupture of the cyst of tubal pregnancy, but in this instance the amelioration of the symptoms at the time when first seen by him led him to hesitate as to the necessity for immediate operation. The sequel showed that in this case an early laparotomy would have been of no service. The patient's recovery is complete.

Dr. Harris heard of this case a week after its commencement and believed from what he knew of it at that time, that it would be advisable to perform the laparotomy; but subsequent developments indicated that the hæmorrhage was extra peritoneal and gradual, and there was, therefore, no immediate danger to be overcome. When, however, he saw the patient, October 28, he was satisfied that her constitutional symptoms required that an exploration of the abdominal cavity should be made, the blood cyst defined, and then that the blood should be evacuated above the left groin. This opinion being sustained in the consultation, the operation was performed accordingly.

Dr. Price inquired if any examination of the condition of the gall-bladder and duct had been made at the time of operation. Was the jaundice due to mechanical obstruction or to the general condition?

Dr. Baer at first thought an error had been committed in not operating at first, when the diagnosis was made and the tube ruptured; but the full history puts the matter in a different light, and would cause great hesitancy about rushing in in a similar case.

Dr. O'Hara had made his diagnosis at the time of the accident. Operation could not have been performed then on account of the collapse, and after that passed away it did not seem called for until the time of its performance. One question has arisen in his mind from the subsequent history of the case. Would it not have been better if the wound had been packed from the time of the operation?

SÄNGER'S CÆSAREAN OPERATION.

Dr. Robert P. Harris said: I desire through this Society to give publicity to the following statement, received a few days ago in a letter from Dr. Sänger, of Leipzig, by which it will be seen that his method now stands unrivalled in the world, in its ability to save human life. Locally considered, the Porro operation, as performed in the Santo Caterina Hospital of Milan, Italy, has until recently far exceeded in its proportionate success all other Cæsarean methods in any hospital or country but this; the best of all Porro successes, has now to be rated second, as compared with its younger German rival. Laparo-elytrotomy, a year ago, stood upon the same level with the Sänger operation in its rate of success; but now the latter far outstrips it in the number of times it has been performed, and in its proportion of cures. According to Dr. Sänger's letter, his operation, with its modifications and simplifications, has been employed twenty-five times, saving eighteen women, or seventy-two per cent., and resulting in

twenty-two children being delivered alive, or eighty-eight per cent. In these are included three fatal American cases, which, if not in an absolutely hopeless state before the operation, gave a very minimum hope of success. The European twenty-two operations saved eighteen women, or $81\frac{9}{11}$ per cent. In the Maternity Hospital of Leipzig, Dr. Sänger has operated four times, Dr. Obermann once, and Dr. Donal once, saving all of the women and children; in but one woman was there any special trouble after the operation. Dr. Leopold, of the Dresden Maternity Hospital, has operated nine times and Dr. Korn once; the former lost one woman; all of the children were saved. Thus we have fifteen women and sixteen children saved under sixteen operations, a mortality for the former of only $6\frac{1}{4}$ per cent. Of the four deaths in Europe, two resulted from septic poisoning which existed at the time of the operation, and in the other two subjects it followed it.

Dr. Sänger has such confidence in his method from the success that has attended it in Germany, that he believes the time has come when it should be preferred to craniotomy, because of its moderate fatality, and its saving the child. We should be glad if all of the Cæsarean operations of the United States should be performed after Sänger's method as simplified by Garrigues and Leopold, but we must not expect very happy results here until our accoucheurs become alive to the fact that delay in operating will make any method fatal in a large proportion of cases. In no country are the capabilities of the old Cæsarean operation greater than in the United States, and in few has this form of delivery been of late more uniformly fatal. To find eighteen recoveries under it we must search backward to January, 1863, and through a record of time covering more than twenty-three years, in which period seventy-three operations have been performed, proving fatal in about seventy-five per cent. This occurred notwithstanding an established fact that a set of early operations will save seventy-five per cent. of the women, and still higher of the children, of the United States.

TAIT ON FARADIZATION.

DR. R. P. HARRIS also presented the following letter from Mr. Lawson Tait, of Birmingham, dated April 18, 1886: "I have very strong objections to the proposal to treat cases of extra-uterine pregnancy by faradization. In the first place, the diagnosis of these cases must always be haphazard; that is to say, a correct diagnosis will not be made probably more than once in three times; the result will be that all such cases will be dealt with mischief only, and I venture to predict that this treatment will be dropped, as all such treatments are, without explanation of the case, in a very short time. My greatest objection is, that supposing the fœtus has passed through the stage of tubal rupture and remained alive, what right have you to murder that child? If it goes on to the full time it may be delivered alive and the woman will have a chance of recovery from the operation far greater than with the faradization treatment of destroying the child. The cases, according to my experience, which recover from the operation are about six out of seven.

"Every one who has had much experience with pelvic tumors must have seen a certain number of cases where the fœtus has died between the fourth and sixth months, and where, after a prolonged course of suppuration, it comes out through the rectum, bladder, etc.; these are, of course, the cases where the tubal rupture has taken place into the broad ligament on the left side. I have seen one right-sided case going into the bladder. It of course killed the patient.

"In the whole course of my life I have only known of one case where the woman has carried an extra-uterine pregnancy for a number of years after the death of the fœtus. We know with perfect certainty all about this case, and for about eighteen years she has carried, on the left side, a condensed ovum of extra-uterine pregnancy. I doubt very much if there could be found in the whole world three other such cases; whereas the number of cases who die or who have prolonged illnesses after the suppuration and discharge of the fœtus is, even in my own experience, very great."

In closing his letter Mr. Tait writes: "I wish you would make this opinion of mine known on your side."

In reply I will state: 1. We do not, in this country, practice electrolysis in cases of extra-uterine pregnancy. No puncturing needles are used, and the electro-magnetic current will not endanger the life of the patient any more if the growth to be acted upon is a tumor, than if it be as presumed, an ectopic fœtal cyst. The experience of seventeen years in the United States, in which no fatal result is believed to have taken place, has only tended to establish this fœticidal method as a valuable means of saving women when in great danger of death from rupture of the fœtal cyst and internal hæmorrhage.

2. We do not propose to act upon the fœtus after it has escaped into the abdominal cavity, unless the fœtus should be very small, and be easily accessible to the pole of the battery placed in the vagina. We cannot see that it is any more a murder to destroy a two or three months old fœtus after it has escaped from a Fallopian tube by rupture, than while it is still in it. The chief objection lies in the fact that such an ectopic fœtus will be much more likely to give trouble after its destruction than one that is securely enclosed in a sac from which the amniotic fluid shall have been absorbed. It is true that an abdominal fœtus may be delivered alone at term, if permitted to live; but it is not correct to estimate the risk of such an operation as lower than faradization properly performed, for it is far higher. Primary laparotomy, as far as we know of the operation, has been fatal in fifteen out of nineteen cases.

It is not proposed in this country to operate by faradization upon fœtuses of from four to six months. Dr. T. G. Thomas has, it is true, proposed to make the limit $4\frac{1}{2}$ months, but the general impression is, that fœticide is much safer immediately and remotely if done in the second and third months, when fœtal ossification is very incomplete. The entrance of fœtal debris into the bladder is not necessarily fatal, as in the case related by Mr. Tait, for Parry refers to nine cases, four of which recovered.

Mr. Tait appears not to be aware of the fact that cases of prolonged ectopic gestation have been comparatively numerous, as witness the following partial record.

1. Nebel reports the case of a woman of 91, who died in 1767, and in whose body a fœtus was found, that she had carried fifty-five years (Campbell on extra uterine pregnancy, 1840, page 45).

2. Brandt records one of a women of 80, who died in 1858, after carrying a fœtus for fifty-six years, and bore two children while it was still in her abdomen. (Ranking's abstract, 1863, vol. 1, page 216).

3. Parkhurst reports one of a women of 77, who carried a fœtus fifty-two years (British and Foreign Med. Chi. Rev. 1856, vol. 1, page 271).

4. Chiari gives a case of a patient who died of pneumonia when 82, who carried an eight months fœtus for fifty years (Lancet, Lond., 1876, vol. 2, page 141).

5. Conant's case was a woman of 63, who died in June, 1863, after carrying a fœtus thirty-five years (New York Med. Jour., May 1865).

6. Majon found in a woman of 78 a calcareous fœtus computed at three month (Cruveilhier, Essais sur l' Anatomie Pathologique, Paris, 1816, tome 2, page 130).

7. Mangin and Vernier found two fœtuses in the body of a women of 74, which she had carried thirty-three years (Jour. de Medicine, 1786, Gaz. Méd., July 29, 1837.

8. Morand also found a three months fœtus in a woman of 78; she had carried it thirty years (Mem. de l' Acad. Roy. des Sciences, 1748).

9. Kristian Grön found a three months fœtus in a woman of 49, which had been carried eighteen years (Norsk Magazin for Lægevidensk, Band xvii, Haft. 2.)

10. Johannis Ambosi (1582) reported a case of a woman of Sens, who carried a fœtus twenty-eight years. (See Astrue, Traité des Mal. des Femmes, Paris, 1765 tome 4, page 78).

11. Campbell reports the case of a woman of 75, in whom was found a fœtus that had been carried thirty years; a fœtus of about two months was also found. (C. on Extra-uterine Gestation, Edin., 1840, page 55.

12. Pepper relates the case of a patient of fifty-three, married twenty-seven years, in whose body Dr. Loder found two fœtuses, one carried twenty-three years (Trans. Patho. Soc., Phila. 1866, page 102.)

13. Francis Boyle removed an 8 pound fœtus after the death of a woman, of Toulouse, that she had carried twenty-six years (Philos. Trans. Abrid., London, 1794, vol. 3, page 222).

14. Cruveilhier in his Anatomie Pathologique, gives a plate representing a calcified fœtus which had been carried many years.

15. Œlinger reports the case of a woman who carried a six and one-half months fœtus about fifteen years (Prog. Méd. Paris., 1884, vol. 12, page 196).

16. Johnson's case, aged 68, carried a fœtus fourteen years, after which she discharged fœtal remains at intervals during thirty years (Med. Times, Lond., 1872, vol. 1, page 655).

17. Leinzell in 1720 removed from the body of a woman of 49, a fœtus that she had carried for forty-six years.

18. Watkins examined a woman of 74, who died of kidney disease, Jan. 13, 1866, and removed a fœtus which she had carried for forty-three years (Brit. Med. Jour., March 3, 1866.

19. Van Sweiten also records the case of a woman of Lyons who died at 68, and had carried a fœtus for twenty-seven years (opus cit.).

20. Fabri, of Ravenna, found in a woman of 55, a fœtus she had carried for some years. The pregnancy was her fifth, and she bore two children at later periods (Brit. Med. Jour., March 7, 1863).

Many more cases of the same character might be added to this list, some of which would go to show that an extra-uterine fœtus may prove fatal by purulant disintegration and pointing after twenty years or more. Even an ectopic fœtus of three months may cause perforation of the rectum and possibly a fatal issue, although this is a rare result, it will be noticed, that in three of the twenty-one cases the fœtus was computed at three months, and in another, a second fœtus was of two months.

Dr. O'Hara exhibited a

FIBRO-CYSTIC TUMOR OF THE UTERUS

removed after death from a patient, æt. 53 years, who had carried it for over twenty years. Three years after it was first observed she applied to Dr. Atles for relief by operation; but he declared and recommended that it should be left alone. The tumor contained numerous small cysts, and measured 39½ by 34 inches in circumference, and weighed 30 pounds. The peritoneum was ¼ inch in thickness and was of a yellowish color.

Dr. Parish remarked that the tumor had formed no adhesions with the exception of a few slight ones to the omentum, and the removal of the ovaries and tubes would have been feasable at any time. Both tubes were dilated and in a condition of hydro salpinx. The tumor sprung from the fundus uteri; the cavity measuring only 4 inches. The tubes and ovaries had remained at their normal position in relation to the uterus, but had been elevated out of the true pelvis. The vagina had been stretched upwards, as also had been the uterine body and neck. The uterus below the fundus had diminished in size to about that of the index finger. The bladder by reason of the traction upward had lost its attachments to the uterus, and merely retained posteriorly its attachment to the vagina, ordinarily the extent of the attachment of the bladder to the uterus becomes greatly increased in large uterine fibroids. In the specimen submitted supra-vaginal amputation of the uterus with the tumor could have been effected with out separation of the bladder from any of its attachments.

It is interesting to observe the condition of bilateral hydro-salpinx some six years after the menopause. The patient died with acute symptoms of vomiting and purging of dark fluids containing probably blood extravasated through the intestinal walls. At the autopsy no indications of perforation of the intestine were apparent. The patient was able to engage in active work until a few days prior to death,

and hence the double hydro-salpinx could not have occasioned prouounced symptoms.

Dr. William Goodell read for DR. HIRAM CORSON, of Conshohocken, a paper

ON THE STATISTICS OF 3,036 CASES OF LABOR.

In the "Transactions of the Medical Saciety of the State of Pennsylvania" for 1863, may be found an article headed "Midwifery in the Country," in which are drawn statistics from 2,387 consecutive cases of labor, to which are now added 649 cases, making in all 3,036 cases with 3,087 children. Head presentations (vertex), 3,012; breech, including knees and feet, 58; shoulder and arm, 5; face, 12. Twins in 51 cases. Ergot was used in 139 cases in first series. Forceps were used twenty-eight times in the first 2,387 cases and thirty-one times in the last 649 cases. Version was performed twice in the last series. One primipara was 52 years of age. Puerperal convulsions in eight cases; all recovered. There was a total of 190 cases in which the children were born before the doctor arrived, and in which the mothers did well under nature's management, and were saved the fright and suffering which, if Credé had been present, would have resulted from his fears of hæmorrhage, his rush of one hand into the vagina the moment after the child was born, and the grasping, squeezing and forcing down of the womb by the other hand on the tender, sore abdomen, to say nothing of having that heavy hand pressing on a tight bandage for two hours more, in accordance with regulation orders.

In the practice of this art I have not followed the requirements of the times. I have considered labor a natural process, and that my duty consisted in awaiting the action of the patient's forces; not setting them aside and myself usurping the duties which the natural efforts would have performed without difficulty; but coming to my patient's aid only when her forces seemed inadequate to the performance of their duties.

I have learned that the forceps are used very often —many, many times oftener in proportion to number of cases than twenty years ago, and that this is done in the early part of the labor; not because nature is inadequate to the work, but because as the physician had never hurt *himself* by using the instrument and wished to get away speedily as he had other patients who needed attention; and though the condition of the lying-in woman would not have permitted him to visit his other patients and return in time to aid her if she needed aid, still he would not do it, through fear that the child might be born in his absence or some other doctor be called in his place. The graduate of a month can never use the forceps and all the other swift, sure means of speedy delivery, without hurting his hands or spraining his back; of course the sufferings and fate of the woman were of secondary importance. Being anxious to learn all about the advances in midwifery, I attended the meeting of the American Gynecological Association in Philadelphia, a few years ago. There I heard from the mouth of more than one eminent gynecologist—men greater than midwives—"Every year I use the forceps more frequently than before." There, too, I was amazed to learn, from the experience of these speakers, how common were the cases of laceration of the cervix and perineum; so numerous, indeed, that when coupled with the fact that the advocates of frequent use of the forceps were teachers of midwifery and also eminent surgeons, skilful to "repair" these lacerations, and that these repairs brought large remunerations to the surgeons, I was dazed, I knew not what to say. I could not believe it possible that the earnest gentlemen before me could have conspired to teach this rushing plan of delivery in order that lacerations should be produced, so that the business of repairing should be brisk and profitable. It was pleasant, a few months later, to hear that the eminent gynecologist Dr. Goodell attributed the great increase of lacerations to the use of the forceps, and earnestly denounced their indiscriminate employment.

In October, 1880, the *Boston Medical and Surgical Journal* contained an article by J. W. Elliott, M.D., on "Antiseptics in Gynecology," with full directions for their use in obstetrics to prevent puerperal fever by destroying poisonous germs which might be introduced by the doctor or nurse. "At the beginning of labor the patient should have a hip-bath, the hair should be shaved from the genitals, the vagina and vulva should be washed with soap and disinfected with carbolic acid. During labor every examination should be preceded by a vaginal injection of a 3 per cent. carbolic solution to prevent the examining finger carrying germs lodged at the vulva or in the vagina up to the uterus (which is about to be more or less lacerated.) After delivery the uterus and vagina should be considered as a deep and important wound which may heal by first intention, or in which the secretions may stagnate, become putrid and be absorbed." As I had never before heard of Dr. Elliott I went on in my usual way, taking no razor to shave the parts, no syringe, no carbolic acid, but let nature go on with her work, pleased to see how steadily and perfectly she accomplishes it. Dr. Corson asks, Is labor a natural process? Are antiseptic solutions, when thrown into the uterus and vagina, safe? and answers these questions from the standpoint of his own experience and by quotations from Albert H. Smith's lecture "On the Relation of Cleanliness to the Prevention of Puerperal Septicæmia;" Dr. W. O. Stillman's account of the precautions taken by Carl Braun, of Vienna, to prevent infection in the lying-in room; Dr. T. G. Thomas, of New York, a paper read before the New York Academy; Dr. George J. Harrison, in reply to Dr. Thomas; and to papers by Fritsch and Kustner, and gives his own experience in his first labor case in 1827. Dr. Corson next considers the forced delivery of the placenta, and claims the originality of the Credé method in its principal details for Professors James and Dewees, the latter saying that it had been long since recommended by Monsieur Dassé, of Paris. He criticizes the unnecessary severity of the latter part of the Credé method and much prefers the directions given by Prof. Penrose, and then details his own method, which leaves more to natural powers,

giving morphia if rigid contraction of the os occurs before the placenta comes away.

He recommends venesection to the extent of ten or twenty ounces to relax a rigidly contracted os in the first stage of labor. If this is not immediately successful he gives morphia internally. He uses ether to relax when pains are too severe.

Dr. Corson next considers the question of tying the cord. Should it be tied at all? How soon after birth should it be divided? What is gained by waiting until pulsation ceases in the cord? These are questions to which careful consideration has been given and which are fully answered. Dr. Corson does not use a binder; has not done so for twenty years. He does not think that it prevents relaxation of the uterus, but that it favors prolapse of that organ. He gives his own experience and fortifies it by that of several other physicians.

He thinks the hasty extraction of the placenta, the compression of the uterus by the hand, and the application of the binder with the avowed intention of preventing hæmorrhage, have a bad mental effect on the patient and predispose to the very trouble we are seeking to avoid. He gives several instances of mental influences in stopping hæmorrhage. He has never used hot water, vinegar, lemon or ice in the uterus for flooding, but has applied ice externally.

Puerperal convulsions, ten cases, all recovered. His treatment consists largely in free venesection, cold water poured over the head, and morphia internally. He recommends the handbook of Dr. Ezra Mechener for the successful treatment of this malady. He would also avert convulsions by bleeding before labor to relieve headaches if accompanied by congestion of the face. Of puerperal or septicæmic fever he knows nothing, having never seen it.

FOREIGN CORRESPONDENCE

LETTER FROM PARIS.

(FROM OUR OWN CORRESPONDENT.)

Mycosic Nature of Tuberculosis, and the Parasitic Evolution of the Furfuraceous Microspore—Toxicity of Urine Different in Waking and Sleeping Hours—Toxicity of Febrile Urine.

At a recent meeting of the Academy of Medicine, Dr. Duguet read a note on some researches that he had made in conjunction with Dr. Héricourt, on the mycosic nature of tuberculosis and the parasitic evolution of the furfuraceous microsporon. These authors noticed the existence of pityriasis versiculor on the chest and abdomen of patients who died tuberculous. At the post-mortem examination the lungs were found to contain spores, myceliæ and granulations of the furfuraceous microsporon, which led the authors to conclude that there existed a form of pulmonary tuberculosis which bears a relation to pityriasis. Experiments with the cultures of the microspores of the skin and those of the lungs produced results absolutely comparable. On several occasions insufflations of the pityriasic scurf were practised in the tracheæ of rabbits. These rabbits wasted away and became tuberculous, which was verified on killing the animals.

On continuing their researches the authors found the same spores and the same myceliæ in the sputa of tuberculous patients taken indiscriminately. Moreover, they discovered that the sputa in which these organisms were found to be the most numerous were equally those which contained the most bacilli, and that the sputa that did not contain microspores did not either contain bacilli. They further discovered that the bacilli were only one phasis of the development of the microsporon, and that the presence of bacilli is not necessary to characterize the existence of tuberculosis. Bacillary phthisis must, therefore, be considered as being only one of the forms of microsporic phthisis a great deal more generalized. These researches are susceptible of a great number of applications relating to the prophylaxis of tuberculosis. Pityriasis versicolor is frequent in debilitated tuberculous patients, it is often the cause of intestinal tuberculosis. These researches also concord with the opinion of those who think that the question of the soil dominates the question of the bacilli.

About a month ago, Dr. Bouchard, Professor of Pathology and General Therapeutics at the Paris Faculty of Medicine, read a paper at the Academy of Sciences in which he endeavored to show that the toxicity of the urine while a person was awake differed in quality and in intensity from that of a person during sleep. He then explained that these differences did not depend on the nature of the food nor upon the hours of meals, and that they are not in relation with the quantity of potash eliminated. For, wishing to complete his demonstration and to determine some other circumstances which, in a physiological state, increase or diminish the toxicity of the urine, Dr. Bouchard instituted a series of experiments permitting him to study the variations of the toxicity of the urine at the different hours of the day, without these differences being, in any way, imputable to the food taken. With this view, the day of twenty-four hours being divided into three periods of eight hours, he got the subject to take, at the commencement of each period, a repast always identically the same in the nature and in the weight of the food and of the drink. These experiments showed that the total amount of the urine during these three periods, viz.: sleep, the hours of being awake in the morning and those of the evening, which may be indicated, on an average, by the numbers 3, 7, 5. The augmentation of the production and of the elimination commences at the moment that the subject falls asleep, the diminution of the elimination commences in the middle of the period of wakefulness.

To ascertain the effects produced by abstinence on this toxicity, Dr. Bouchard went through another series of experiments which formed the subject of another paper which he read at a subsequent meeting of the Academy of Sciences. The author states that he suppressed the repast at the commencement of one of the periods of sleep, and he compared the total toxicity of the urine secreted during that period with that secreted during the same period, and in

which he allowed the regular ration. He arrived at a result which at first sight seemed paradoxical, inasmuch as the abstinence increased by half the toxicity of the urine. This fact was explained as follows: A person reduced to live at the expense of his own substance destroys with greater difficulty and more incompletely living matter; whereas in the conditions of normal alimentation, he burns more easily and more completely the circulating material. The question is asked, what becomes of this toxicity under the influence of a day's corporal exercise of great activity, out in the country, and in the open air? Dr. Bouchard ascertained that it diminishes about one-third.

The author concluded his paper with the statement that in these physiological conditions, viz.: normal alimentation, abstinence, sleep, wakefulness during rest, wakefulness during muscular activity, the variations of toxicity appear to depend particularly on the more or less greater intensity of oxidation.

In connection with the subject of the toxicity of the urine in physiological conditions, I may here make a note of a paper read by M. Felz on experiments performed by him to ascertain the toxic power of febrile urine. The experiments were performed with human urine of subjects suffering from typhoid fever, scarlet fever, acute tuberculosis, pneumonia, and acute articular rheumatism, which the experimenter injected into the venous blood of dogs. The results obtained were as follows: The so-called uræmic accidents, from the first efforts of elimination followed or not by effects indicating nervous, convulsive, toxic or clonic phenomena, leading always to coma and nearly always to death, are manifested much more rapidly than when normal urine is employed. These phenomena are produced with urine in doses far inferior to those which would have been necessary if the experiments were performed with normal urine. The doses of intoxication are two-thirds or half inferior to the doses of intoxication of normal urine, and correspond to the volume of urine secreted by the dog in twenty-four hours at the minimum, or forty-eight hours at the maximum. The author adds that the toxic power of febrile urine is far from obeying the law of proportionality of densities. He found that there existed in pathological febrile urine agents of toxicity which are not found in normal urine, or which are represented in the latter only by quantities relatively very feeble.

A. B.

DOMESTIC CORRESPONDENCE

CREMATION.

TO THE EDITOR OF THE JOURNAL:

Dear Sir:—Your editorial explanation (page 98, July 24, 1886), as to the present status of the subject of *Cremation* before the American Medical Association, is certainly correct. Dr. Keller's resolution, as cited, was thoroughly discussed in the Section of State Medicine and proved too extreme, at that time, for the small number of Sanitarians present at the discussion. I offered a resolution to the effect "That Cremation was the most certain and feasible method of preventing possible infection from dead bodies." This resolution was the direct conclusion from the article I had read before the Section under the title of, "Purified as by Fire." The final outcome of the discussion was that a committee (as you state) was appointed to investigate the subject still further, and report to the Association next year. The weakest point in the logic of such a conclusive resolution as Dr. Keller's seems to be—Have we sufficient facts to prove *the infective power of dead bodies*, and, *the poisonous influence of neighboring graveyards.*

As a member of the Committee I would be pleased to receive information from any member of the American Medical Association, as to any such *facts* within their own knowledge. Respectfully

G. S. FRANKLIN, M.D.

Chillicothe, Ohio, July 26, 1886.

MISCELLANEOUS.

THE MISSOURI STATE BOARD OF HEALTH AND MEDICAL COLLEGES.—At a meeting of the Missouri State Board of Health on July 12, the following resolution was passed:

Resolved: That in future a percentage of graduates to matriculates of forty-five (45) or over, will be grounds for refusal of registration of diploma and issuing of certificate to graduates of a school otherwise in good standing; provided, however, that before such action is taken by this Board, the said school whose diploma is presented for registration, shall be notified and an opportunity be given the faculty thereof for satisfactory explanation to the State Board of Health.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 17, 1886, TO JULY 23, 1886.

Col. Glover Perin, Surgeon, leave of absence extended one month. (S. O. 165, A. G. O., July 19, 1886.)

Major Wm. H. Gardner, Surgeon, granted four months' leave, to take effect Aug. 10, or as soon thereafter as his services can be spared. (S. O. 165, A. G. O., July 19, 1886.)

Major Calvin DeWitt, Surgeon, assigned to duty at Ft. Sully, Dak. (S. O. 66, Dept. Dak., July 14, 1886.)

Capt. Richards Barnett, Asst. Surgeon, leave of absence extended six months on surgeon's certificate of disability. (S. O. 162, A. G. O., July 15, 1886.)

Capt. J. J. Kane, Asst. Surgeon, ordered from Ft. Ringgold, Tex., to Ft. Hancock, Tex. (S. O. 85, Dept. Texas, July 13, 1886.)

Capt. Wm. F. Carter, Asst. Surgeon, ordered from Ft. Concho, Texas, to Ft. Ringgold, Texas. (S. O. 85, Dept. Texas, July 13, 1886.)

Capt. Jno. M. Dickson, Asst. Surgeon, ordered from Alcatraz Island, Cal., to Ft. Mason, Cal.

Capt. Jno. J. Cochran, Asst. Surgeon, ordered from Ft. Mason, Cal., to Presidio of San Francisco.

Capt. A. J. Gibson, Asst. Surgeon, ordered from Ft. Winfield Scott, Cal., to Alcatraz Island, Cal., on return from leave of absence. (S. O. 56, Dept. Cal., July 8, 1886.)

First Lieut. Wm. O. Owen, Jr., Asst. Surgeon, ordered for duty at Ft. Schuyler, New York Harbor. (S. O. 84, Div. Atlantic, July 15, 1886.)